ENGINEERING NEWS-RECORD

U. S. Ports – Big construction job ahead p. 2

E B POWER GS
UNIVERSITY MICROFILMS I
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ANN ARBOR MICH

A McGRAW HILL PUBLICATION

67 tons of Wrought Iron Downspouts used on Vancouver's new Granville Bridge

Engineers for this massive eight-lane highway bridge had a big problem—4,000 motorists per hour who wanted uninterrupted traffic flow every day, year-in, year-out.

It called for sound engineering and careful material selection to eliminate maintenance and repair crews from blocking vital traffic lanes. Typical of this emphasis on durability and freedom from maintenance is the use of wrought iron pipe for the bridge downspouts. Sixty-seven tons of this time-tested material were used in this service.

Consulting Engineers:
J. R. Grant in association with Pearson, Phillips & Barratt, Vancouver, B. C.

General Contractors:
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Wrought iron has proved itself in a variety of corrosive services in bridge applications throughout the world . . . in protective plates, deck plates, hand railings, and electrical conduit for example. Its lower-cost-per-year is borne out in case after case where repairs and replacement are seldom necessary. Our booklet, "Wrought Iron in Bridge Construction," has the kind of data that can save you money in the long run. Write for your copy.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Division Offices in Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. International Division: New York, N.Y.

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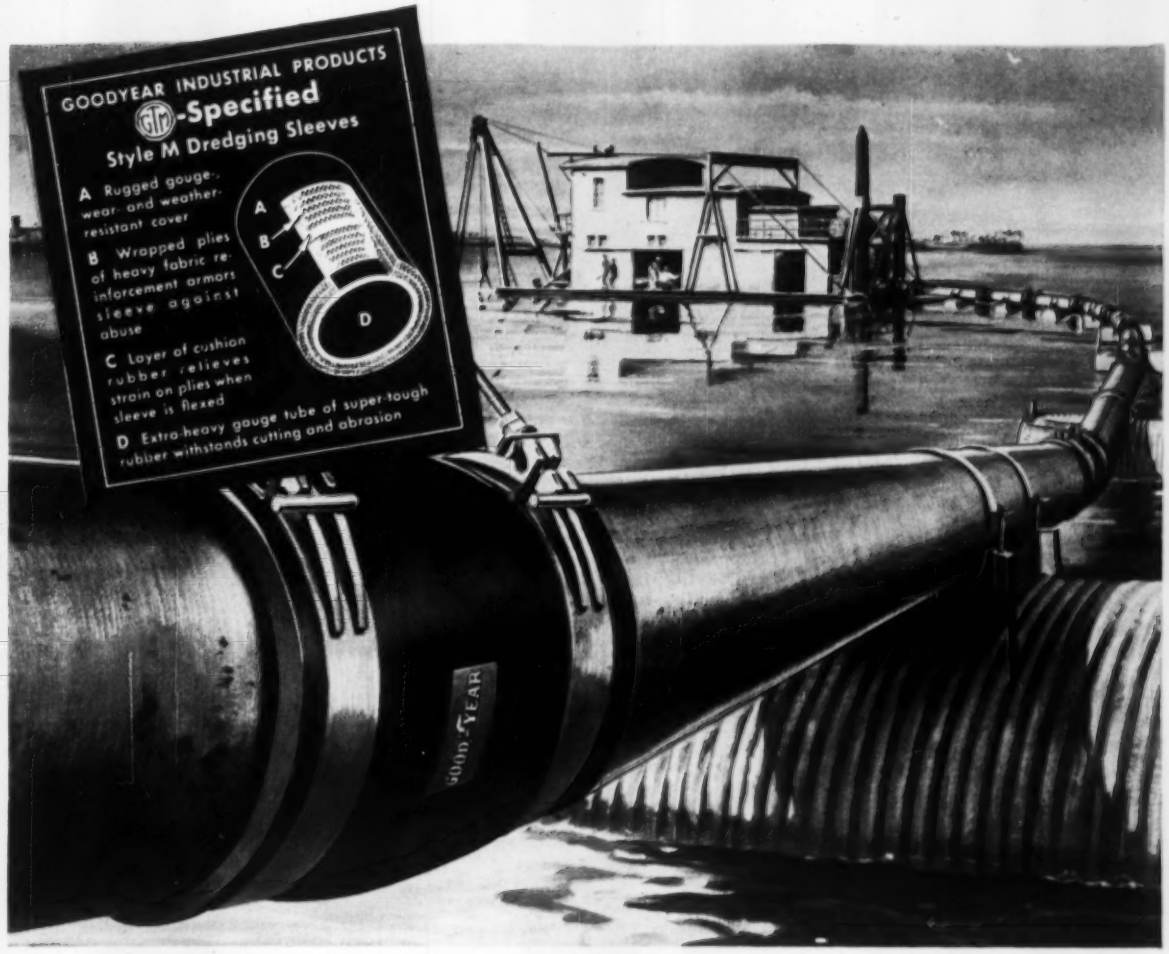
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A Rugged gouge-, wear- and weather-resistant cover
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C Layer of cushion rubber relieves strain on plies when sleeve is flexed
D Extra-heavy gauge tube of super-tough rubber withstands cutting and abrasion
A
B
C
D
GOODYEAR

Look what's up the G.T.M.'s sleeve, now!

It's a razor-sharp coral rock! The kind that's used as aggregate in asphaltic road mixes.

In the operation pictured above, this rough, abrasive rock posed a real problem. It quickly chewed through every kind of dredging sleeve tried. Some of these flexible, rubber links between the metal pipe of the pontoon line *lasted less than 10 hours.* Average service was *only one month.* That is, until the G.T.M.—Goodyear Technical Man—stepped into the picture.

The G.T.M. recommended specifically developed Style M Dredging Sleeves. These hand-built combinations of special rubber compounds and reinforcing fabric were made to order for the job—serve an average of six months—six times previous service. For details on these durable sleeves, or any of the more than 800 types of hose available from the G.T.M., see your Goodyear Distributor or write Goodyear, Industrial Products Division, Akron 16, Ohio.

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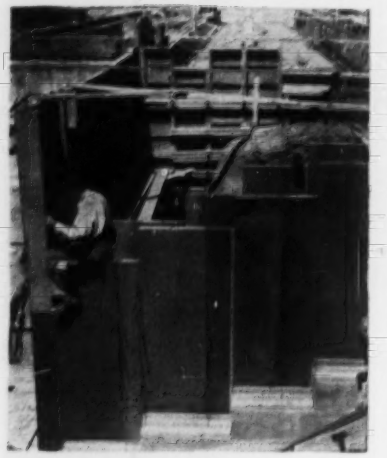

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No machine ever developed for excavation work has demonstrated more versatility and ability to make money for its owner than the Northwest Pullshovel. Having the advantage of being a pioneer rig of this design the Northwest Pullshovel has reached a higher state of development and efficiency in operation than other similar equipment.

Northwests have handled trench up to 32-ft. deep. They have proved themselves in tough rock digging. They set pipe! Trim bank! Handle basement excavation without getting in the hole. They have even handled road grading.

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Model 25 cuts the trench and digs the bell holes in the same operation.

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Trimming bank on a bridge approach saved time and money.

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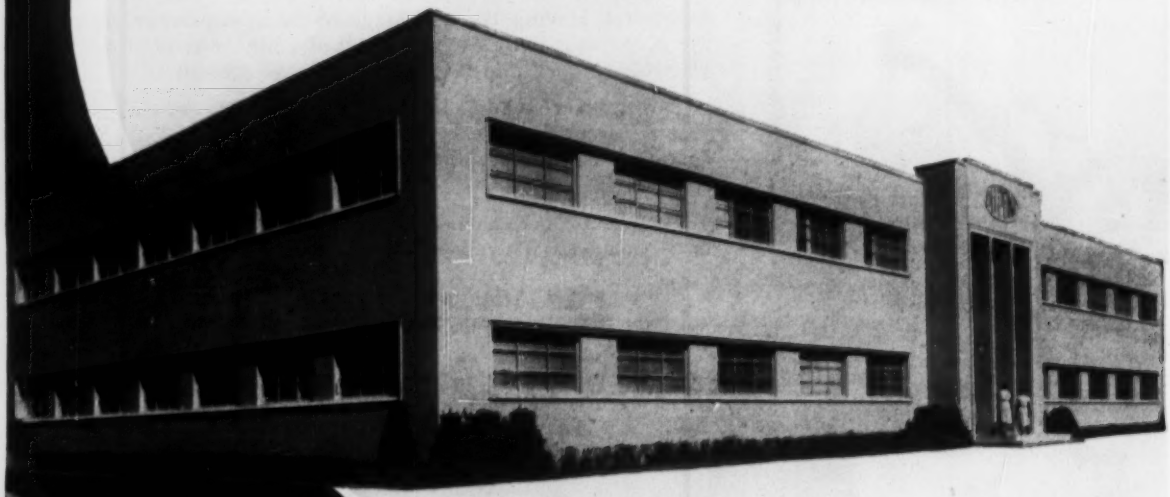
(ELECTRIFIED CONCRETE JOIST FLOORS)

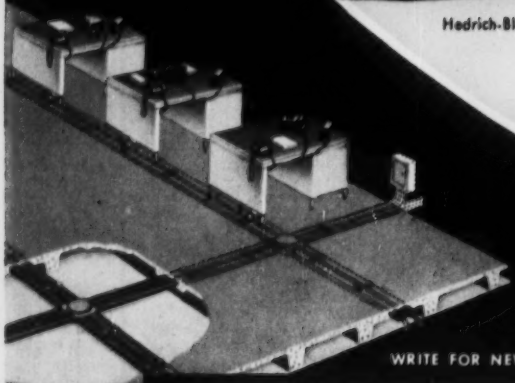
provide 100% electrical flexibility

for the tenants of the handsome, new *reinforced concrete* building of E. I. du Pont de Nemours and Company

R/C Duct Floors (electrified concrete joist floors) provide the management and personnel of the new E. I. du Pont de Nemours and Company (Finishes Division)* with a *complete* network of underfloor electrical outlets for power, light, telephone, and intercom systems—at a new low cost. Additional outlets can be connected to convenient risers in minutes. There is no ripping up or drilling through floors and ducts. R/C Duct Floors, which meet all building code requirements, consist of *standard* steel electrical distribution ducts set in the *structural* slab of reinforced concrete joist floors . . . no expensive fill or topping is needed. Cost studies show that R/C Duct Floors average 19% less than cellular steel floors. Furthermore, reinforced concrete buildings start quicker and are completed sooner.



Hedrich-Blessing



Owner	E. I. du Pont de Nemours and Co.
* Location	7250 North Cicero Ave. Lincolnwood, Illinois (Suburb of Chicago)
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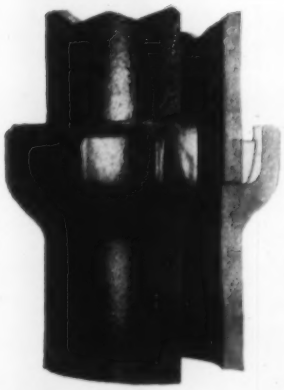
AMVIT* JOINTED CLAY PIPE



No other materials such as caulking, joint compound, joint runners, hot-pots or ladles are needed to make the Amvit Joint. Installation is quick and easy. The joint is on the pipe delivered to the job ready for use. Nothing else is needed. Just push the pipe together and the joint is complete. Savings on materials and labor with Amvit Jointed Clay pipe mean *lower cost of pipe in place.*

Field tests from completed Amvit installations show that ground water infiltration can now be prevented – this resulting in a sizable savings in both pumping and treatment plant costs.

Amvit is a compression type joint on the ball and socket principle. The diameter of the spigot ring is somewhat larger than the largest diameter of the bell ring. When the joint is made, the surfaces of both bell and spigot rings are in constant uniform compression. Nothing can enter the line!

Amvit Jointed Clay pipe, in sizes 4" through 24", together with all fittings is available for immediate delivery in the Northeast and Central States.

For more information, write or call American Vitrified Products Co., National City Bank Bldg., Cleveland, Ohio, or our office nearest you.

The Amvit Joint is made of a plastic material with rubber-like characteristics. Like the pipe, the joint will withstand the most severe underground conditions. Amvit Joint is also furnished on all standard fittings.

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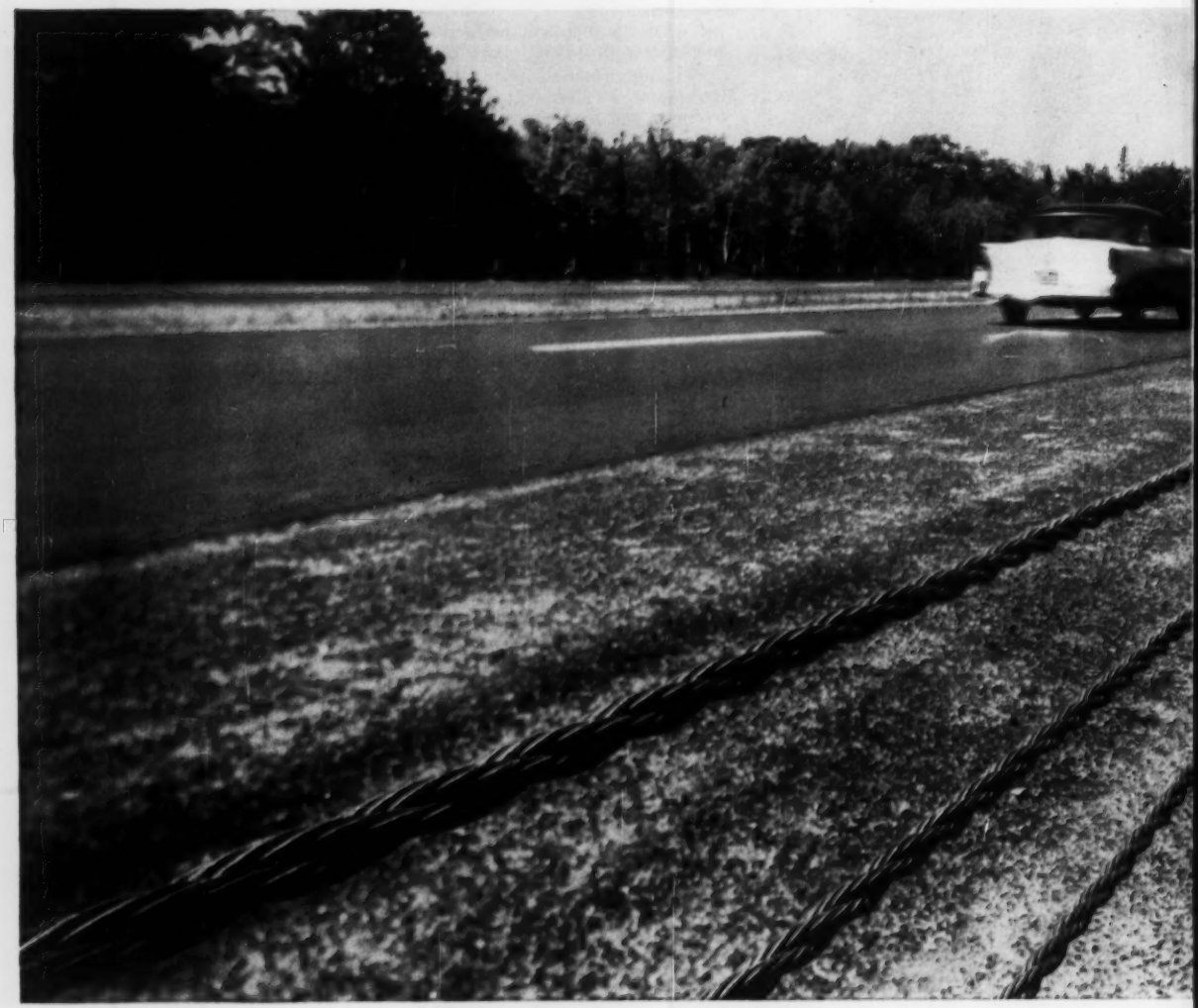
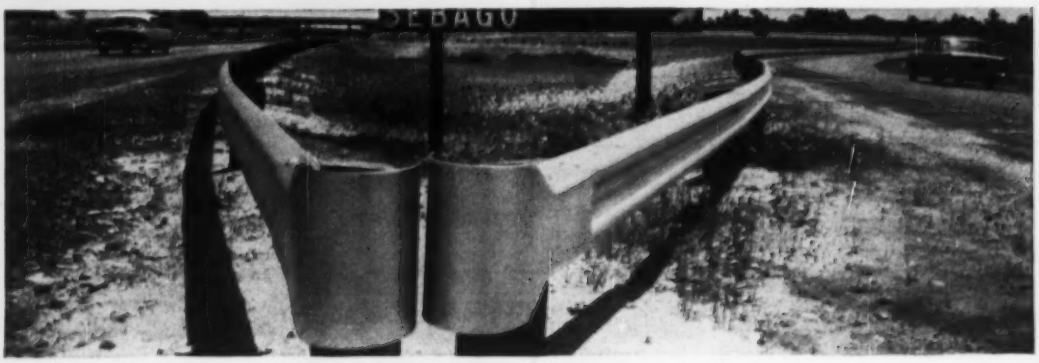
On New Maine Turnpike

Two types of
COMBINE SAFETY WITH





American Highway Guard

GOOD APPEARANCE

▲ American Multisafty Cable Highway Guard, like this used on the new Maine Turnpike, provides two-fold protection. First, it restrains cars from plummeting off the berm. Second, the combination of resilient steel cable and resilient spring-steel offset brackets cushions the shock of collision and helps minimize damage to the vehicle, serious injury to the passengers.

◀ American Beam-Type Highway Guard is also used on parts of the Maine Turnpike. It provides a strong, attractive, durable guard.

THE MEN who designed the Maine Turnpike needed two types of highway guard. Along some sections they wanted to use cable guard; at other sections, they wanted beam-type guard. They obtained *both* types from American Steel & Wire. American Multisafty Highway Cable Guard and American Beam-type Highway Guard assure an economical installation that will stay attractive *and* protective with minimum maintenance. With these two guards they combined essential safety with desirable good looks.

American Multisafty Cable Guard comes in two basic types: 3-cable guard, which gives adequate protection at highway speeds up to about 50 miles per hour; and 4-cable highway guard, which protects up to about 75 miles per hour. A Super Guard consists of six or eight cables for special situations, where an extraordinary margin of safety is desired. In any installation, cables can be added or replaced quickly and easily if changing highway conditions demand additional protection.

Remember the quality and the reputation of American Steel & Wire when you need construction materials of any type of highway guard, wire fabric, road joints, or wire or strand for prestressed concrete. Send the coupon for complete information about any of these products.

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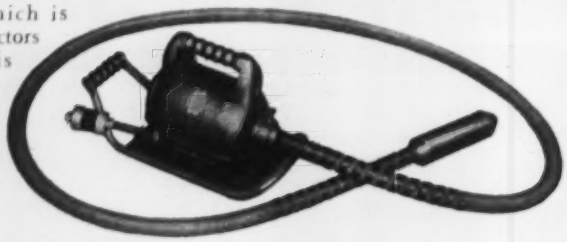
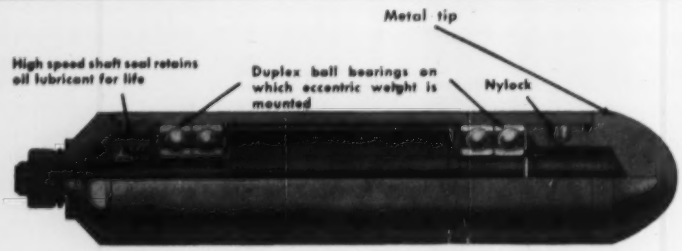


This wallop is achieved by the unique vibrator head, shown below, driven by a powerful 2 HP motor which delivers 9000 vibrations per minute to the mix.


Metal tip
High speed shaft seal retains oil lubricant for life
Duplex ball bearings on which eccentric weight is mounted
Nylock

Take a look at this vibrator head. It is 10 inches long, and available in diameters of 1⅝, 2 and 2½ inches, capable of 9000 VPM. Vibrations are achieved by use of an eccentric weight mounted in special high speed duplex ball bearings at each end. The outside of the head is case hardened, for extra long wear, and it has a replaceable tool steel tip. Stow estimates that these two improvements alone will double the life of the heads.

CONSTRUCTION MEN report that they like the light weight, the long life, the low replacement cost, and the terrific wallop of these heads. Weight of the 1⅝" head is about 5 lbs.; the 2" head about 7½ lbs.; the 2½" head, about 9 lbs. The cost of this head is less than ½ the cost of expensive "motor-built-in" type heads.

For more information about the complete line of STOW concrete electric and gasoline vibrators, vibrating screeds and rotary trowels, contact your STOW distributor, or write for STOW catalog 560.

STOW MANUFACTURING CO.

19 Shear St., Binghamton, New York

Reader Comment

Speed Questioned

SIR—In the Aug. 30th issue of Engineering News-Record, there is a picture and description of a new bascule bridge recently opened to traffic at Stockholm, Sweden.

I believe that the statement that it can be fully opened in **eight seconds** is in error.

The bridges of the City of Chicago, with which I have had over 40 years of experience, open in about 45 seconds. Most of them have movable leaves from 100 to 120 ft long from center of trunnion to tip. The longest is the Wabash Ave. bridge, 134.5 ft long by 90 ft wide. Due to its extreme dimensions, its operating time was increased slightly over the 45 seconds.

It is customary to allow 10 seconds each for acceleration and deceleration, with the rest of the time for running. The times given are for operation against a 2.5 psf wind, with longer times against a 10 psf wind.

D. N. BECKER
Civil Engineer
A. J. Boynton & Co.
Chicago

Speed Answered

SIR—The correct time for opening of the bascule bridge in Stockholm is **80 seconds.**

The story which you received was from Swedish International Press Service, and when I checked, they were not aware of any error in the story as they sent it out—with the figure 8 seconds. However, they are not experts, and they referred me to the Stockholm Port Authority, which operates the bridge. The Port Authority confirms the time as 80 seconds.

GEORGE WILLIAMSON
Stockholm Bureau
McGraw-Hill World News Service

Wrong Job

SIR—On page 165 of your Sept. 6 issue appears a notice under Foreign Heavy Construction to the effect that

Engineering News-Record welcomes expression of opinion from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance.

Letters should be addressed: Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

the man at the controls doesn't wear kid gloves

he has a tough job to do and needs equipment that can take it!

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EVERY DIGGING PURPOSE

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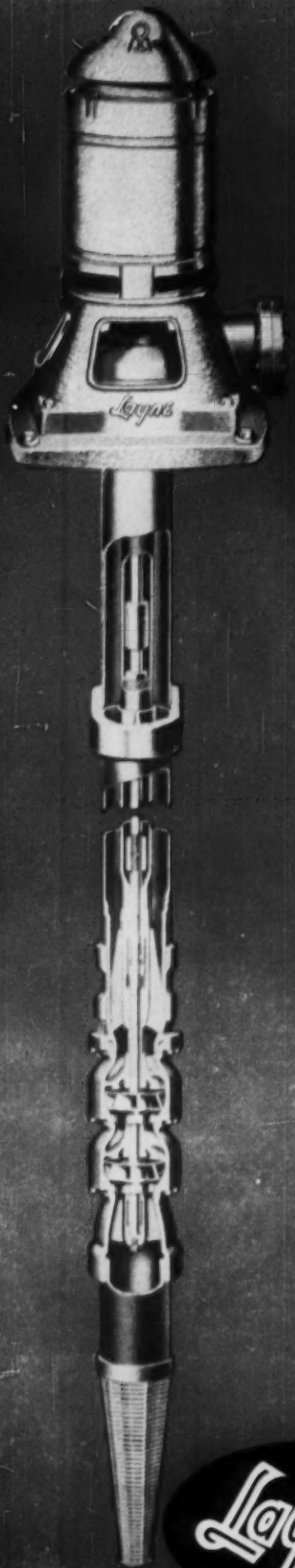
All Hendrix Buckets available without perforations

HENDRIX MANUFACTURING CO., Inc.
MANSFIELD, LOUISIANA



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. . . Reader Comment

Brown and Blauvelt will construct a railway in Saudi Arabia.

This notice has resulted in a barrage of phone calls and sales literature from equipment suppliers that will serve no useful purpose, since Brown and Blauvelt is an engineering firm exclusively, and will design and supervise construction of the railroad. Construction tenders will be invited at a later date.

Further, the notice concerned the Riyadh-Medina-Jeddah Railway, which is a different project from the one we have been awarded. Our contract has to do with rehabilitation of the Hedjaz Railway Line from Ma'an in Jordan to Medina, Saudi Arabia.

FRANCIS L. BROWN
Brown & Blauvelt, Consulting Engrs.
New York City

Why Frame Girders Failed

SIR—Your report on the Robins Air Force Base warehouse girder failures (ENR Sept. 27, p. 28) is misleading in that the kind and amount of the "web reinforcement throughout" in the collapsed girders are not given. The ratio of the stirrup area in the length from the support to the zero-moment points the main steel area over the support is 0.15. A 67-ft girder reinforced in such a manner cannot carry the computed load.

At the location of the failure of these girders, there are No. 3 stirrups spaced 18 in. c-c, which theoretically take about one-eighth of the occurring diagonal tension.

Tests published in 1950 showed that the tensile strength of the concrete is not a linear function of its cube strength. The tensile strength of 2,987-psi and 5,655-psi concretes was only 11% different, indicating that the principle of construction of the specifications is erroneous. In addition, cracks develop in actual concrete girders at much lower values of the computed stresses than indicated by tensile test specimens.

Stirrups start to act when crossed by a crack. To meet a stirrup, a crack in the collapsed girders had to be 26 in. long. In fact, the photograph shows no stirrup in the full length of the break of the girder. After the development of the crack at the most stressed section in a girder reinforced like all these Air Force warehouse girders are, there is practically no possibility for the maintenance of equilibrium. The very weak and very far-spaced stirrups cannot hinder the process of deformation developing in the cracked girders. I stated ten months ago that the failure of all these girders is possible, and the Robins AFB gir-

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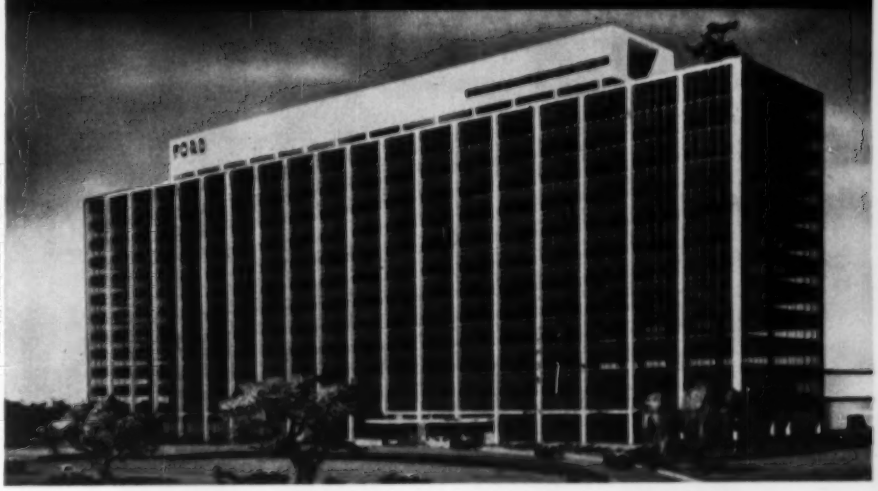

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Shown above is the Ford Motor Company's magnificent new administration building which occupies a 90-acre site in Dearborn. It provides nearly 950,000 square feet of floor space, approximately 500,000 square feet of which is Q-Floor and on which 3,000 employees are working in the comfort of the latest in modern lighting and air conditioning.

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PERLITE

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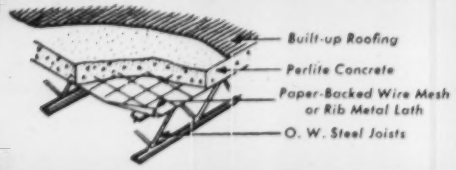
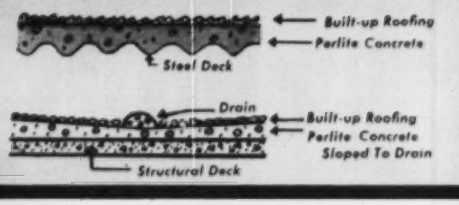
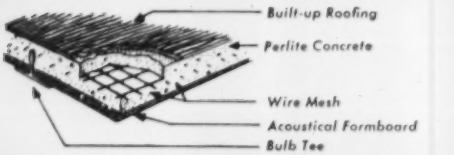


2 Combine insulation and lightweight fill.



3 Combine fire safe insulation and acoustical ceiling.



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1:6	27	180	0.175

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ders proved this opinion to be correct.

Straight-bar and stirrup reinforcement is inferior to bent bars and smaller diameter stirrups, spaced not over 25*d*. Diagonals effectively hinder deformations, and stirrups are much more efficient in hindering the enlargement of diagonal cracks if used in conjunction with them. The concrete hinders elongation of the stirrups in inverse proportion to their diameter. Diagonals and small-diameter stirrups are superior in strength and economy to orthogonal reinforcement.

Web reinforcement for only two-thirds of the shear a few feet beyond the extreme position of the point of inflection is inadequate for long-span girders. In view of the inaccuracies in establishing the actual magnitude of the vertical shears, of the neglect of really large torsional shears and of the need of stirrups for other purposes also, complicated specifications for unknown conditions and taking risks with the non-uniform safety factor of the main carrying elements of long-span structures are theoretically and economically unjustified.

Louis Baloc
Consulting Engineer
Binghamton, N. Y.

CALENDAR

The Construction Section, National Safety Council, Conrad Hilton Hotel, Chicago, October 22 and 23.

National Safety Council, 44th National Safety Congress and Exposition, Oct. 22-26, Chicago, Ill., Hotels Conrad Hilton, Congress, LaSalle and Morrison, Oct. 22-23.

American Concrete Institute, 9th annual regional meeting, Sheraton-Mount Royal Hotel, Montreal, Canada, Oct. 24-25.

American Institute of Steel Construction, 44th annual meeting, Greenbrier Hotel, White Sulphur Springs, W. Va., Oct. 29-Nov. 1.

National Society of Professional Engineers, fall meeting, The Greenbrier, White Sulphur Springs, W. Va., Oct. 25-26.

Society for Experimental Stress Analysis, Deshler-Hilton Hotel, Columbus, Ohio, Oct. 31-Nov. 2.

West Coast Noise Symposium; third annual meeting, noise in buildings, Institute of Aeronautical Sciences Auditorium, Los Angeles, Calif., Nov. 12-13.

American Public Health Association, annual convention, Convention Hall, Atlantic City, N. J., Nov. 12-16.

American Road Builders Association, annual meeting and road show, Chicago Amphitheater, Jan. 28-Feb. 2.

Raves for no ravin' beauty...

"What a beating! But in 12 years, trucks have never had a lubrication failure!"

FOX RIVER'S MIGHTY MACHINES all provide trouble-free performance using Cities Service Gasolene, Diesel Fuel, and Lubricants. These outstanding products help the company operate at 150 tons per hour.

THAT'S DUST, BROTHER! This motor, buried in dust, is typical of operating conditions at Fox River Stone Company. Yet, using Cities Service Pacemaker Oil, there's never been a bearing failure. Never any lubrication problems.

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Operating at the rate of 150 tons per hour under the toughest conceivable quarry conditions, Fox River Stone Company produces barn and agricultural lime, 2" and 3" stone for road construction, "A" and "B" binder for asphalt road construction, flagstones, and a host of other crushed stone products.

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With the aid of Cities Service Gasolene, Diesel Fuel, and Trojan H-2 Multi-Purpose Grease, Fox River's many shovels, pay loaders, and trucks have given constantly flawless performance. And despite the extremely dusty quarry conditions, exposed electric motors have never lost a bearing using Pacemaker 150 T Lubricating Oil.

Not one lubrication failure in any of this equipment during 12 years of rugged operation! That's Fox River's record with Cities Service and it can be your record when you start using Cities Service Products. For information, talk with your nearest Cities Service representative or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.

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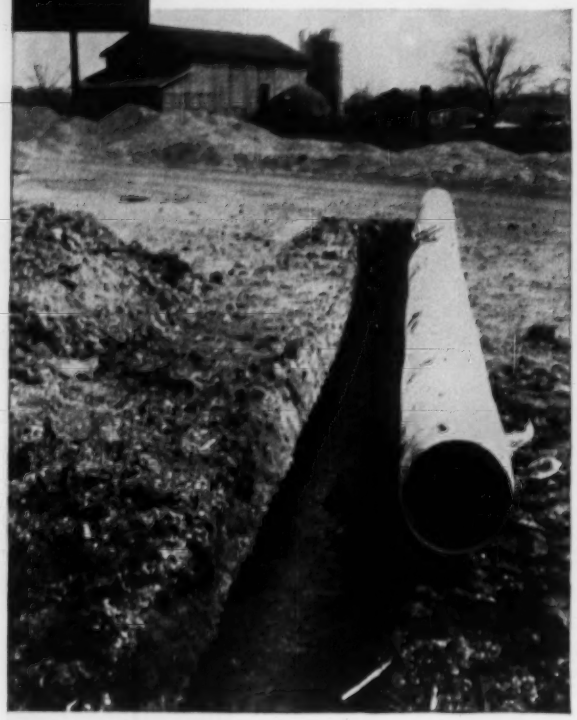
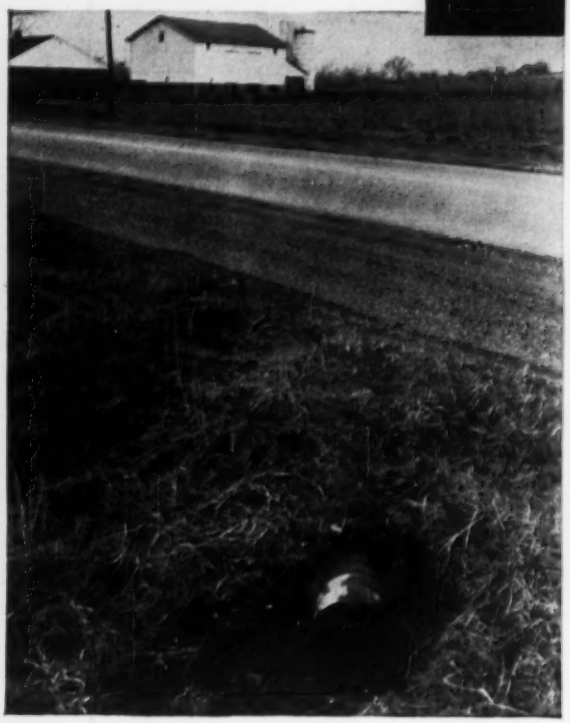
1930

This photo, taken 26 years ago, shows 8-inch-diameter Armco Perforated Pipe being installed to correct a soft spot in the road.



Same Armco Perforated Pipe as it appears today (coarse gravel filter removed to show condition). Pipe is still in good shape.

1956



Armco Perforated Pipe Still Serves Highway After 26 Years

In 1930, a section of Route 122 in Ohio had a subdrainage problem that required repeated pavement repair. To remove the excess underground water and correct the condition permanently, Armco Perforated Subdrainage Pipe was installed. The water emptied into the roadside ditch.

Today, the pipe is still operating efficiently. The outlet has been covered with a coarse gravel filter to allow water to empty into the ditch, and yet eliminate any possibility of a hazard for vehicles leaving the road.

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Primary purpose of perforated pipe is to remove excessive water in the subgrade. Armco Perforated Pipe does this job efficiently. Water seeps in through holes drilled in the side of the pipe invert, and runs out to ditches or drainage conduits.

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ARMCO PERFORATED PIPE

ARMCO

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New Orleans, Louisiana

OWNER: Greater New Orleans Expressway Commission. DESIGNER: Palmer & Baker, Inc., Mobile, Alabama. CONTRACTOR: Louisiana Bridge Co. (a joint venture of Brown & Root, Houston, Texas and T. L. James & Co., Ruston, La.)

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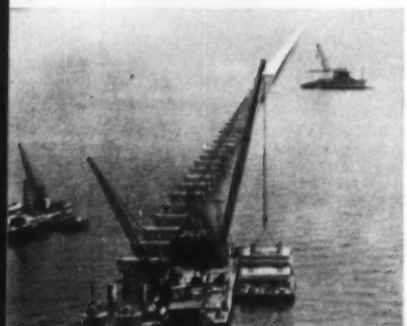

Installing the piles, pile caps and deck slabs.

The 37 acre manufacturing yard, built specifically for this job.

By using simplified design and unique assembly line construction methods, the $30,700,000 new Lake Pontchartrain Causeway, stretching 24 miles from the outskirts of New Orleans to Mandeville, La., was completed four months ahead of schedule. The use of Raymond Prestressed Concrete Cylinder Piles was a major factor in the saving of time and money in this project. Under the direction of Raymond engineers, a pile fabrication yard was constructed at the bridge site. Just three months after the manufacturing yard was started, the first Raymond Cylinder Pile came off the assembly line and was floated to the installation point. In all, the contractor, who was licensed to manufacture and install the Raymond Piles, used 4,886 fifty-four inch piles averaging 88 feet in length, 2,240 pile caps and 2,232 185-ton Prestressed Deck Slabs in the bridge.

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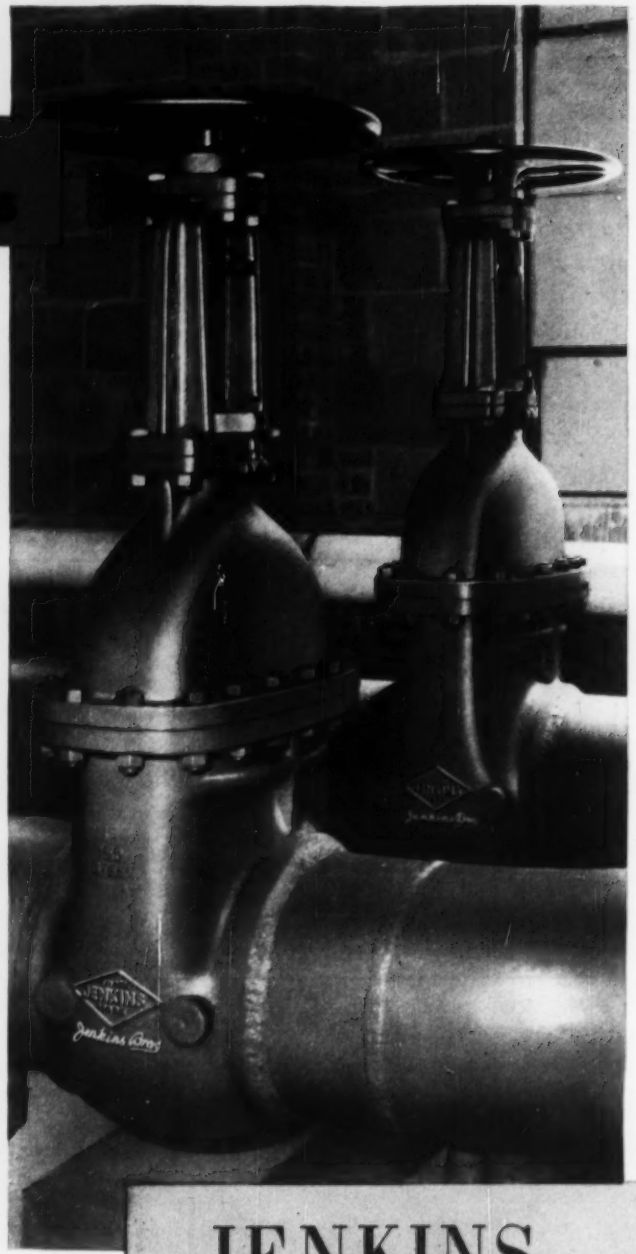

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THE CONSTRUCTION WEEK

CIVILIAN ATOMS—The Atomic Energy Commission announced that protests (on the basis of safety) against its decision to license a private nuclear development near Detroit would be aired in open hearings next month. AEC was not obliged to hold a hearing, either open or closed, but apparently bowed to political pressures. To many observers, the AEC action marks a turning point in the nuclear era—the atom now a civilian utility to be regulated for the time-honored "public convenience and necessity."

URBAN RENEWAL FIGHT RENEWED—The running battle over urban renewal in New York City took a pair of newsworthy turns last week. A Manhattan court upheld the right of a private developer to use a partially-cleared slum site, acquired at bargain rates from the city, as a parking lot. And, the enterprising developer, Jack Ferman, head of Manhattantown, Inc., passed word that he would soon put himself out of the parking lot business, in a "couple of weeks" anyway, when construction finally starts on the project that has been delayed for four years.

BID IN THE HAND—The old adage, "Better late than never," has been proven true by an absent-minded city hall janitor in Tacoma. It all started when Tacoma's Public Utility Board opened three bids for steel structures and electrical equipment for a City Light substation and awarded the contract to the low bidder. Then the board discovered that the janitor had (1) received a lower bid, (2) stuffed it in his pocket, (3) forgotten to deliver it to the City Board of Contracts and Awards until after the opening. Final result: The original contract was cancelled, the other firm got the job. Under Washington law a bid must be considered if mailed early enough to arrive in time via normal delivery.

WRIGHT DESIGNS PREFAB—Architectural iconoclast Frank Lloyd Wright is preparing to smash one of his own idols—the one-of-a-kind house. His newest venture: Designing a prefabricated home to be built in Madison, Wis., by Marshall Erdman and Associates. The house will use mass produced windows, doors and other components produced by Erdman. Wright feels most prefabs "lack grace, proportion and distinction."

FIRST NUCLEAR POWER ON THE LINE—Yesterday 92,000-kw Calder Hall Station on the northwest coast of England was cut into Britain's national electrical grid. It thus became the first nuclear power-plant to go into commercial production. Its construction involved magnitudes, materials and tolerances never before encountered: A 70-ft-high steel reactor pressurized to 100 psi, on-site welding and heat treating of 2-in. steel plate, and 7-ft-thick concrete shields 90-ft high formed to 0.1 in. accuracy.

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HYATT HY-ROLL ROLLER BEARINGS

WASHINGTON OBSERVER

The housing slump is continuing. According to best government estimates (based on the September figures), starts probably won't go higher than a 1.1 million total this year. Last month's starts—93,000—show that the decline is continuing. Government officials are easing up regulations affecting home building, but the outlook is for a 17-to-20% drop from last year's 1.3-million.

To offset the decline, officials opened up government credit to veterans last week, talked about expanding the areas in which these direct loans may be made, and shortened the time the veteran has to wait for a decision on a loan. This comes only a few weeks after FHA lowered down payment requirements on low-price homes and made it easier for builders to borrow government money from the Federal National Mortgage Association.

None of these moves, however, is expected to be felt to any degree before the end of the year.

•

The 4½% maximum on GI loans is an effective barrier to higher FHA rates says Housing Chief Cole, and FHA's 4½% will stay where it is until Congress permits higher charges on VA loans. FHA already has authority to insure loans carrying 6% interest; their regulation holds it at 4½%.

Officials still say a higher rate won't increase starts, that this would not attract enough additional funds into the mortgage market to make any perceptible difference.

Assuming tight money continues, Congress will be under pressure next year to permit the interest rate on GI loans to go higher. Despite the economics of the situation, the Veterans Lobby will be dead set against it—and they have been successful in winning similar fights in the past.

•

This year's construction activity isn't showing the increase forecast by the government's experts just a few months ago. Their latest guess on spending indicates an increase of less than 2% over last year's $43 billion—whereas they had anticipated a 4% rise. Probable reason: tight money and tight materials.

•

If the money squeeze is hurting you, check the Small Business Administration as a source of credit. The Administration has been making it easier for the agency to grant loans—just last week SBA increased the maximum it will contribute to a loan shared with a bank and gave local officials authority to approve more loans on their own without Washington's okay. Last month SBA loaned $7.6 million to 223 companies—double the rate of a year ago.

•

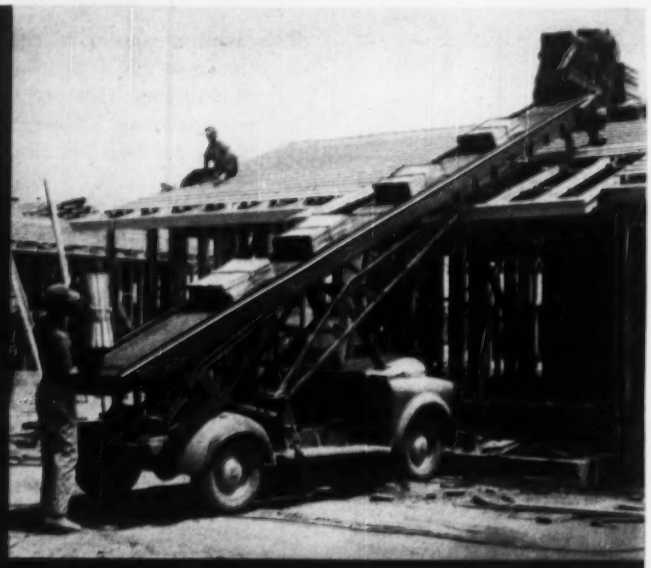
Construction of Idaho Power Company's Hells Canyon Dams will go ahead as far as the courts are concerned so far. A Circuit Court of Appeals has found that the Federal Power Commission did not go beyond its authority in issuing the company licenses to build its three low dams—thus defeating the claims of the proponents of a federal high dam. But high dammers say they'll continue the fight, perhaps through an appeal to the Supreme Court.

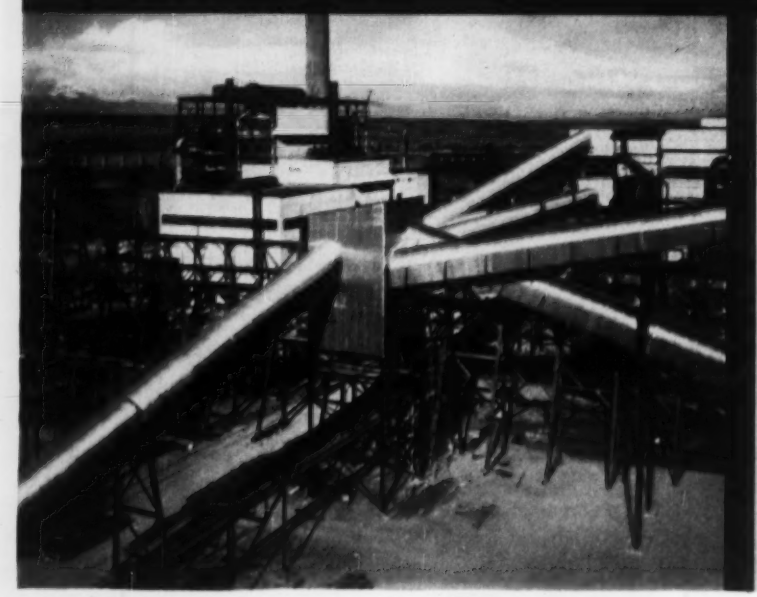
•

The $50-million government grant program for sewage treatment is getting started. The Public Health Service has begun circulating application forms to its regional offices which state and municipal bodies will use to qualify for aid.

Curtiss M. Everts, chief sanitary engineer of Oregon, will head up, temporarily, the PHS construction grants section. George Read, a civil engineer familiar with PHS hospital construction, will handle the pollution section's structural engineering analysis.

Conveyor Belts...





By the foot...

just 60 feet of new U. S. SteepGrade belting (on this Travelift, Phelps Manufacturing Co., Van Nuys, Calif.) helped *triple* the daily hauling capacity of this California roofing company.

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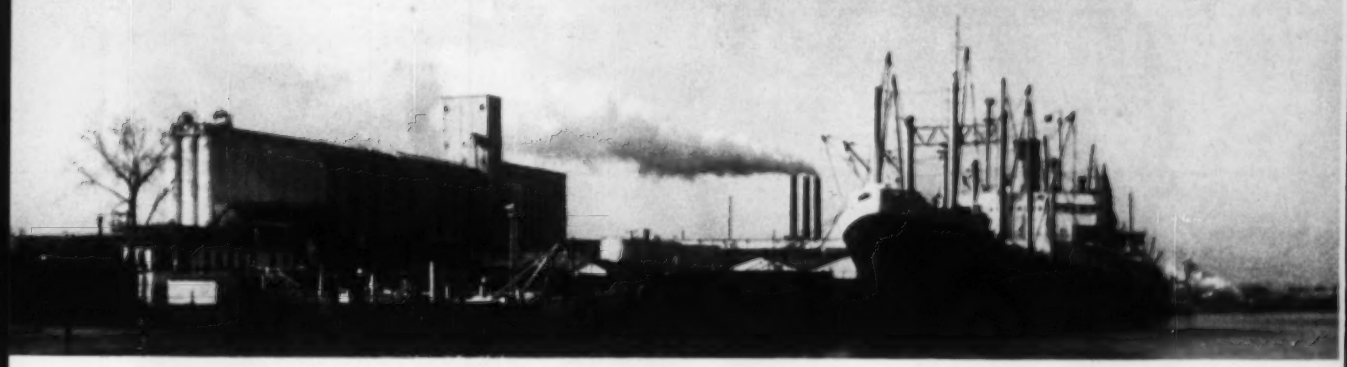


U. S. AND CANADIAN PORTS:

Age and Competition Spur a New Boom

An ENR Staff Report

Under the twin spurs of competition and obsolescence, 26 major U.S. and Canadian port cities will spend more than a half-billion of their own dollars in the next few years to build or modernize ship handling facilities.

In some cases, the spur has been the now-building St. Lawrence Seaway. This route, when opened, will permit the Great Lakes ports to compete for some of the sea trade now entering Atlantic Coast harbors.

But in most instances, the spur has been the ships themselves. The piers and quays designed in the sailing ship era and even those built more recently are proving to be hopelessly inadequate for handling the large, modern, high-tonnage vessels of today. And, too, as pollution control becomes more effective, the marine borers are returning to prey on the untreated, century-old pilings which support narrow, obsolescent cargo handling areas.

• Seaway Competition

Somewhat paradoxically, the St. Lawrence Seaway is causing more excitement on the Atlantic Coast than on the Lakes themselves.

Major ports, such as Boston, New York, Philadelphia, Baltimore, which have traditionally competed with each other, take the coming Seaway competition seriously.

For a port like Baltimore, the problem of the Seaway is, perhaps, most serious. Baltimore officials are well aware that their city—unlike New York, for instance—has no great manufacturing complex around it that must depend on the port for its raw materials. Instead, it is almost entirely dependent on products delivered from the Midwest or Europe for trans-shipment.

Baltimore has prospered from its geographical position in relation to the ore, metal products and grain producing areas in western Pennsylvania and Ohio. Also it has enjoyed freight differentials over other major ports, but these differentials are being wiped out. And an engineering survey a year ago estimated that more than 80% of its grain shipments and perhaps 50% of all other trade is susceptible to diversion to Great Lake ports.

The answer most probably lies in better facilities, particularly for general cargo. Development in recent years has been aimed largely at bulk cargo, but the first project of the newly established Maryland Ports Authority is likely to be a $6-million general cargo pier.

And the Lake ports aren't the only competition. To the south, ports such as Norfolk are pushing aggressive construction programs. In the north, Philadelphia has a $50-million program on the books; the Port of New York has a total of about $163 million either under way or planned; Boston has $15 million worth of work under way now—with plans in the $50-million class for the future—dependent, somewhat, upon the clarification of a new state ports law.

On the Great Lakes themselves, reaction is much slower. Many of the cities are taking a careful "wait and see" attitude toward the Seaway. Some—such as Milwaukee, Chicago, Toledo and Erie—are pushing ahead fast with ambitious programs. But Buffalo, Detroit, Cleveland, Toronto and others are surveying and arguing but not doing too much.

• Obsolescent Facilities

But despite the potential competition from the Great Lakes, the age and condition of the facilities themselves demand construction expenditures.

Most major East Coast seaports —such as New York (and its complex of Newark, Jersey City, Hoboken)—have a surprising number of piers and wharves that date back to pre-Civil War days. Age and inadequacy also have taken their toll of the ports along the Gulf of Mexico and on the West Coast.

In most ports, for example, piers were built to accommodate sailing ships and small-tonnage steamers. They aren't long enough by modern shipping standards. By the same token, the sheds were built mostly with an eye toward manual handling of cargos and with a minimum of mechanical aids. Thus, they aren't wide enough and floors are not strong enough. In addition, they are cluttered with columns, supports and narrow doors.

Even in piers built in fairly recent times, aprons on the pier sides are so narrow that modern cargo ships must be fended off by floating booms to prevent their overhanging sides from colliding with upper works of the pier sheds.

Most of the old structures stand on untreated wood piles, and the years have produced crazy-quilts of patchwork to keep them standing. Many are fire hazards.

On top of all this, the gradual cleaning of harbor water in many East Coast

areas has been a mixed blessing—at least from the port point of view. The marine borers are returning. Boston now has an $11-million rehabilitation program under way on a single pier because limnoria had so weakened the old piles that the structure was in danger. Borers have been reported advancing up-Hudson in New York harbor.

On the Pacific coast there are special problems too. Long Beach, for instance, has a peculiar one in the subsidence of underwater lands in its harbors. Seattle and Portland have problems of increasing capacities, as has San Diego.

• Atlantic and Gulf Coast

Biggest programs on the books at the moment are on the East Coast and in the Gulf. New York takes top honors from a money standpoint.

Between the bi-state Port of New York Authority and New York City's Department of Marine and Aviation, a total of more than $230 million is either definitely committed or planned for the U.S.'s biggest port. Of that amount, the city's marine department seeks $63.7 million for the next fiscal year to begin work on a proposed six-year, $130-million program that will see vast changes in the city's 576 miles of waterfront property.

On top of this, PNYA has more than $100 million worth of construction now in progress. This includes work at Port Newark, Hoboken and Jersey City and an $85-million rehabilitation of two miles of Brooklyn waterfront.

Next in line in point of size is New Orleans, with a $72-million program which port boosters expect will assure the city's present position as the No. 1 port on the Gulf of Mexico. Work will include a $20-million program of replacing old wooden wharves and new construction totaling over $50 million in the next 10 years.

Officials of the Board of Commissioners of the port also are eyeing happily the recent U. S. approval of a shortcut canal to the gulf, and they're making plans for even larger expenditures if the canal generates the hoped-for further increase in ship traffic.

Philadelphia, now starting a $50-million program in an effort to hold and better its position as the nation's second port, plans to improve eight now-used piers at a cost of more than $7 million and to rescue five groups of derelict piers at a cost of $43.5 million. The city's present problem illustrates the general one. There are 139 piers and wharves along the Delaware River, 39 on the Schuylkill. But of these, 50 are unsuitable for berthing modern ocean-going vessels and 36 are so dilapidated as to be unusable.

Other ports on the Atlantic and Gulf seaboards are working ahead. Providence, R. I., will spend $1 million on a ship-truck transfer terminal. Galveston already has spent nearly $14 million. Freeport, Tex., is building itself an entirely new port. Houston has more than $2 million of work in progress, plans much more.

• West Coast

With the Seaway no threat and obsolescence a smaller problem, the port construction drives of major Pacific ports are being fueled by competition among themselves.

At San Diego, the amazing growth of the city and its surrounding satellites is one reason for port activity. But more compelling is the hoped-for great growth of agricultural activity in Arizona and southern California. Now under construction to meet this challenge is a $9.5-million terminal, an 18-month project expected to be in partial use early next year.

Long Beach has a special problem: subsidence of the harbor bottom. And it has put out several million dollars each year to combat this condition, as well as to repair and rehabilitate structures. Since 1953, close to $10 million a year has been spent on the harbor, largely to handle the huge petroleum shipments that account for three-quarters of its business.

...Have these plans for expansion, modernization

1. **Milwaukee** — $5.5-million cargo pier
2. **Chicago** — New port on Lake Calumet
3. **Detroit** — Much planning, little action
4. **Toledo** — $2.9 million for improvements
5. **Cleveland** — $2.5 million this year
6. **Erie** — State backs improvement work
7. **Toronto** — $3 million for new terminals
8. **Buffalo** — No major projects
9. **Montreal** — New grain terminals
10. **Boston** — Major rehabilitation pushed
11. **Providence** — Preparing for trailer ships
12. **New York**, **Jersey City**, **Newark**, **Hoboken** — Major programs under way by PNYA and cities
13. **Philadelphia** — $50 million ready
14. **Baltimore** — New authority gets going
15. **New Orleans** — Starts $72 million program
16. **Galveston** — Rehabilitating six piers
17. **San Diego** — Terminal in planning stage
18. **Long Beach** (Calif.) — Dredging project
19. **Los Angeles** — Completing big program
20. **San Francisco** — Spent $35 million so far
21. **Portland, Ore.** — $7 million to spend
22. **Seattle** — Spending $1.5 million a year

Los Angeles, although it handles about three times the tonnage of Long Beach, is spending less per year, but the sum still is impressive. The city now is completing a $35-million program launched after World War II and financed out of port revenues. It includes a $10-million terminal for Matson Navigation Co., a $6-million passenger-cargo terminal for American President Lines and a $2.3-million marine wharf for an oil company. Another $24 million of construction in the planning stage will cover enlarged transit sheds, a citrus pre-cooling plant and other work over a 10-year period.

In San Francisco, where the port is owned by the state and administered by a state board of harbor commissioners, some $35 million has been spent since the end of War II to improve and extend the 8¼ miles of waterfront and 18 miles of berthing space. No budgetary provisions were made for new work beyond the present year, but a master plan the port has been following since before the war calls for more construction in the future.

Farther north, the two busy ports of Portland and Seattle are working hard to corner more trade.

Portland's Commission of Public Docks is working on a plan to completely overhaul facilities on the Willamette River.

Seattle, with expenditures averaging $1.5 million a year for the last five years, expects to continue spending on that scale.

• And the Lakes

A number of the ports on the Great Lakes are on the hesitant side with respect to improvements and expansions. Included in this category are Buffalo, Detroit and Montreal—with Detroit providing the best example.

In Detroit, the port picture is one of contradiction piled on confusion. Numerous surveys, speeches and studies seem to be in complete agreement on only these points: Detroit has been a port since French colonial days and its facilities now stretch for 31 miles on the Detroit River, five miles on the Rouge River, and include 131 docks and wharves.

From that point there are a number of arguments as to what should or shouldn't be done. These are some of the views being expressed: The port has more capacity now than it will ever need; its facilities for unloading ships are too efficient, unloading ships so quickly that docking charges don't return a big enough profit; touching the port are small carriers that make numerous stops around the lakes, unloading only portions of their cargos; so that larger facilities are not required; union activities have blocked improvements; scandal and political control are barely under the surface.

The fact remains that nothing is being built or planned in Detroit.

In many other Great Lakes cases another situation is typical, too. Much waterfront land is privately owned by railroads so that municipal developments are difficult.

But there's plenty of planning work elsewhere. On the U.S. side of the Lakes, Milwaukee will spend $5.5 million for a new cargo pier, put out more to improve an already well-equipped port. Chicago, pushing hard on development of its Lake Calumet area, now is building the first $24 million out of bond financing. Cleveland—after much local controversy—has an $8-million bond issue to finance lakefront work. Toledo, with a preliminary appropriation of $2.6 million and a brand-new port director, is ready to go to work. Erie, with backing from its state government, is hustling hard to keep its main port business—iron ore.

On the Canadian side, Toronto is working steadily to improve its facilities. It opened a $1-million terminal for grain a year ago, plans two more. Kingston plans a $4-million overseas shipping terminal. Hamilton, Ont., has started to build a $2-million terminal for its heavy steel exports. Windsor—opposite Detroit—is studying a $19-million harbor development program.

FSIWA convention puts spotlight on . . .

"Bugs" in the Pollution Control Law

Pollution controllers had the federal water pollution control law under the microscope last week in Los Angeles, and the bugs in its construction-grants provision loomed large.

In a half-day session at the 29th annual meeting of the Federation of Sewage and Industrial Wastes Associations, state and federal sanitary engineers discussed how to get the appropriated federal aid rolling. They raised more questions than were answered.

In this first open discussion of the water pollution law it was quite clear that there is much that's not quite clear in the plan for distribution of federal aid.

Spokesmen for the federal government's Public Health Service, Mark Hollis and Gordon McCallum, were able to report that the federal machinery for processing aid applications was completely assembled and final okay by the Budget Bureau was imminent (ENR Oct. 4, p. 23). But there were several questions put to them on the propriety of federal aid for specific and peculiar circumstances, questions they could not answer.

Spokesmen for state pollution control agencies evidenced in large measure some logical if incomplete thinking on their responsibility for determining priorities for the disbursement of construction grants. But there was also some muddled thinking revealed.

• Priorities for Grants

California is perhaps the most progressive of the states in deciding how to perform its priority-assigning function. AM Rawn, chairman of California's Water Pollution Control Board, in a Monday morning welcoming session spoke of pollution control accomplishments in the state. And in his talk he presented the priority-establishing scoring system shown here.

By mid-week, Vinton W. Bacon, executive officer of Rawn's State Board, was able to report refinements in the scoring system, refinements intended for the board's consideration as a means toward grading projects even more finely on basis of the pollution control need. Chief refinement added was consideration of the man-days of water use given the polluted stream or body of water in question. The most used waters are to be given a higher priority score than the least used. And for breaking tie-scores, the use itself will be considered in an established order of importance.

California's intended timetable for disbursements of aid funds allocated is as impressive as its progress on priorities. Present thinking: Application forms for aid will be mailed to every municipality in the state by Nov. 1. By Dec. 1, these applications must be completed and submitted by all communities seeking money on this fiscal year for projects ready for construction. On January 15, 1957, the State Water Pollution Control Board will submit to PHS its complete list of projects certified (with priority) for construction money out of California's portion of the current $50-million federal appropriation.

And this is important: A project to rate state certification in California must be prepared to let first construction contracts by June 30, 1957.

Vinton Bacon's presentation of how California hopes to put the incentive-aid to work drew the greatest interest. But also reported was the latest thinking on the problem in Indiana, where a municipality's median income, dilution waters available and effect of pollution on water uses are intended to establish priority for aid; and in New York, where financial need and pollution need of an applicant are expected to be given equal weight.

• PHS Grilled

State and interstate sanitary engineers had a chance to ask federal engineers Hollis and McCallum some pertinent questions:

• Will there be funds for planning?
No, not out of this first year's authorization. There are just too many planned projects ready to go. That's an administrative decision made for this first year in the 10-year program.

• What about federal funds for interceptors without treatment works?
No, that's not pollution abatement.

• How will grant money be forthcoming?
In two payments, or possibly more. If awarded in two payments, the aid would come at the half-way mark and on completion of project. In effect, it is to be reimbursement for money expended on work put in place.

• Annual Meeting on Aid

Acting on a suggestion by Edward J. Cleary, Chief Engineer and Executive Director of the Ohio River Valley Water Sanitation Commission, participants in this session on the nation's new clean streams law suggested that the FSIWA pass a resolution asking the U. S. Surgeon General to call an annual conference of state and interstate interests on the problems of administering the law. Such a resolution was referred to the federation's Executive Committee before the convention closed.

California's Basic Aid Priority Plan

The California State Water Pollution Control Board has worked out a priority system it may employ in recommending municipal sewage works projects for participation in the grants program. It's a point system based on financial and pollution abatement need, with 30 points the perfect score. (Refinements in this system are already indicated.)

Financial Need (10 pts max.)

Assessed Valuation per capita	Points	Project Construction Cost per capita	Points
$ 0-299	5	$ 0-39	1
300-599	4	40-79	2
600-899	3	80-119	3
900-1199	2	120-159	4
1200-1499	1	160-over	5
1500-over	0		

Water Pollution Control Need (20 pts max.)

Extent of need	Points
Legal order to abate pollution	20
Waste discharge requirements not being met	16
Requirements and treatment works needed in the immediate future	12
Requirements not set but needed in immediate future	8
Unsewered community which when sewered would cause pollution	4

It is evident that if such a conference on PL. 660 were held right now, there would be amendments presented for the as yet untried statute. Biggest bug seen by many of these state sanitary engineers (who wanted no federal aid) is that it does not provide enough federal aid. Mark Hollis says it is not so much a lack of money in the law but a problem of its distribution among the states. Reapportionment was discussed as a desired amendment. Milton Adams of Michigan made the point in later discussion that if his state could get more than its prescribed annual allotment of aid this year and next, it could get along with less than its limit in years to follow.

Hyperion sewage treatment plant, the pride and joy of Los Angeles in spite of the notoriety it has gained as a victim of the area's unparalleled growth in population, was a strong contender for top interest of the delegates. Four papers touched on various aspects of Hyperion's present and future design and operation. And many delegates took a scheduled field trip to the plant. Plans for the plant's modification to primary from secondary treatment were discussed without any indication that thinking on this move has changed from what has already been reported.

At its convention banquet, FSIWA made an honorary member of W. H. Wisely, long-time Executive Secretary of the federation, now Secretary of the American Society of Civil Engineers.

The Federation Presidency was assumed by Emil Jensen (see page 71). New vice-president is Kenneth Watson, consultant on water management and waste control for the General Electric Co. in Schenectady.

Highway Administrator Named

Bertram D. Tallamy, New York State Thruway Commissioner, will run the $33-billion program; Volpe made interim chief

In a somewhat unusual maneuver, President Eisenhower last week announced the appointment of two top construction industry figures to begin the task of getting the nation's $33-billion highway program into high gear.

The key appointment was that of Bertram D. Tallamy, chairman of the New York State Thruway Commission, to the $20,000-a-year post of Administrator of the Highway Program. But—since Tallamy made it clear he wouldn't be able to take on the new job until January—the President gave an interim appointment as Administrator to John A. Volpe, Massachusetts contractor who only recently resigned as his state's Commissioner of Public Works (see page 68).

The new post of Administrator, approved by Congress in the closing days of the last session, is to be a sub Cabinet-level job, taking off some of the present duties of the Commissioner of Public Roads and adding others. It was a compromise offered by the Administration in response to Congressional demands which took the form, in one instance, of a bill calling for appointment of a three-member commission to oversee the 13-year highway program.

The Tallamy appointment must be confirmed by the Senate when it convenes next January.

The President's action came as something of a surprise to official Washington, although the delay between passage of the highway bill and the appointment had become a cause for considerable pressure on the office of Secretary of Commerce Sinclair Weeks.

It was known that Tallamy, among several others, was under consideration for the post, but most observers did not expect an appointment until after election day—and more probably after the first of the new year.

• **Appointment approved**—The appointment of the 54-year-old Tallamy was greeted with approval throughout construction circles last week. A civil engineering graduate of Rensselaer Polytechnic Institute, Tallamy was a private consulting engineer before entering public service in the mid-thirties as deputy chief engineer of the Niagara Frontier Planning Board. Then—after serving as chief engineer of the board—he became deputy superintendent, then superintendent of the Department of Public Works of New York State and on to his present chairmanship of the New York Thruway Authority (ENR June 28, p. 49). Well known in highway circles, Tallamy was president of the American Association of State Highway Officials in 1951.

Volpe, who heads his own contracting firm in Winchester, Mass., served just short of three years as top man in the Massachusetts public works organization, and was instrumental in pushing through plans for the state's turnpike, now nearing completion, the rehabilitation of Route 128 circling Boston, and other work. Now 47, he is a graduate of Wentworth Institute, and has been an active officer of the Associated General Contractors and other organizations.

• **Why and wherefore**—At latest reports, Tallamy definitely wanted the appointment, provided he could be sure of at least a four-year chance to handle the program—but wasn't interested in signing on until election doubts were cleared away.

Volpe, on the other hand, has long protested his desire to drop out of public work.

Highway leaders are sure the two men will work as a team, with Tallamy calling the shots on policy decisions during Volpe's temporary tenure.

Reasons for the appointment of an Administrator are obvious enough to most who know the Bureau of Public Roads and its problems. At the moment, the Commissioner (C. D. Curtiss, who remains in his post and title) has a five-way job:

He is the administrative head of a bureau that employs—at last count—3,645 persons, working through four main office divisions, 10 field divisions and 51 field offices; he is chief engineer of a major engineering organization; he is a sub-Cabinet officer with many duties relating to the briefing of Congress and elected government officials; he is often a mediator between state and federal highway officials; he is head of a nationwide research organization.

In the discussions before Congress, it was conceded that superimposing the administration of a huge new highway program on these other duties would pose an impossible burden. The post of Administrator was contemplated as relieving the Commissioner of the legislative and much of the administrative facets of his job, leaving him free to deal with engineering and research problems.

Ft. Pitt Tunnel Contracts Slated for Award This Year

Construction of the Fort Pitt Tunnel at Pittsburgh has moved a step closer to reality with the appointment of George M. Heinitsh as chief engineer for the project.

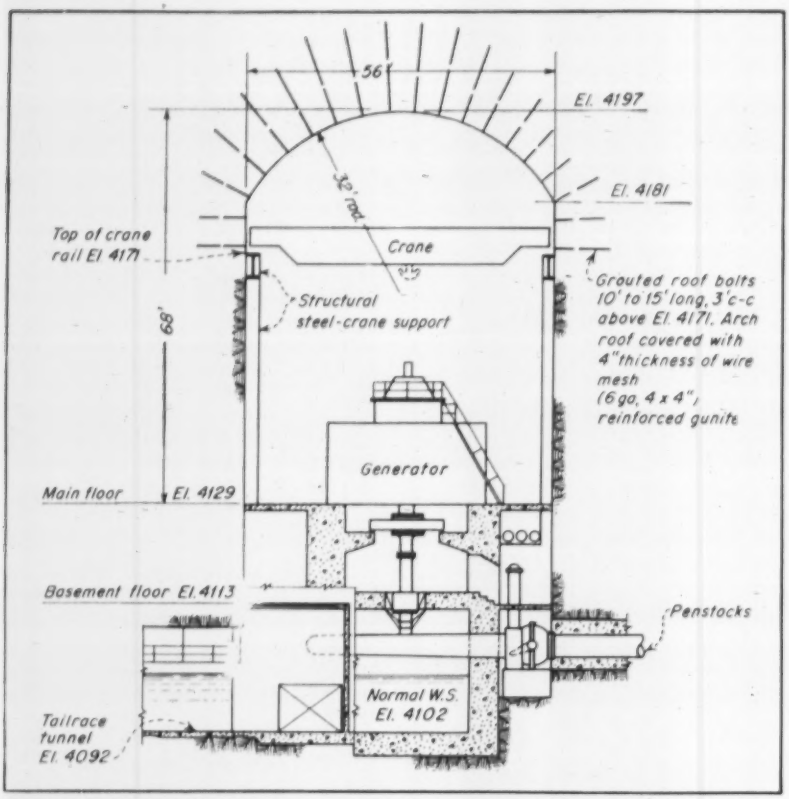
To be eligible for the job Heinitsh was transferred from the Pennsylvania Tunnel Commission, of which he was chief engineer, to the Department of Highways. The transfer was necessary after Gov. George Leader decided Aug. 28 to remove responsibility for construction from the hands of the Pennsylvania Tunnel Commission and place it with the Department of Highways. The tube—originally planned as a toll facility—now will become part of the Interstate System and as such will be toll free.

It is expected that contracts for construction will be awarded this year and that the job will be completed to coincide with the opening of Fort Pitt Bridge. The tunnel and bridge are the final stages of the Penn-Lincoln Parkway.

California hydro project to have . . .

First Big Underground Plant in U. S.

A contract for the excavation of 6½ mi of tunnel and the first large underground powerhouse in the United States, the Haas powerhouse on the north fork of the Kings River, Fresno County, was awarded last week by Pacific Gas & Electric Co. Successful bidder was a joint venture of Morrison-Knudsen Co., Inc., Henry J. Kaiser Co., Macco Corporation, and B. Perini and Sons, Inc.



HAAS POWERHOUSE will measure 56x175x105 ft high and be capable of 128,000 kw.

A 128,000-kw power plant will be located in a solid rock chamber 500 ft below ground.

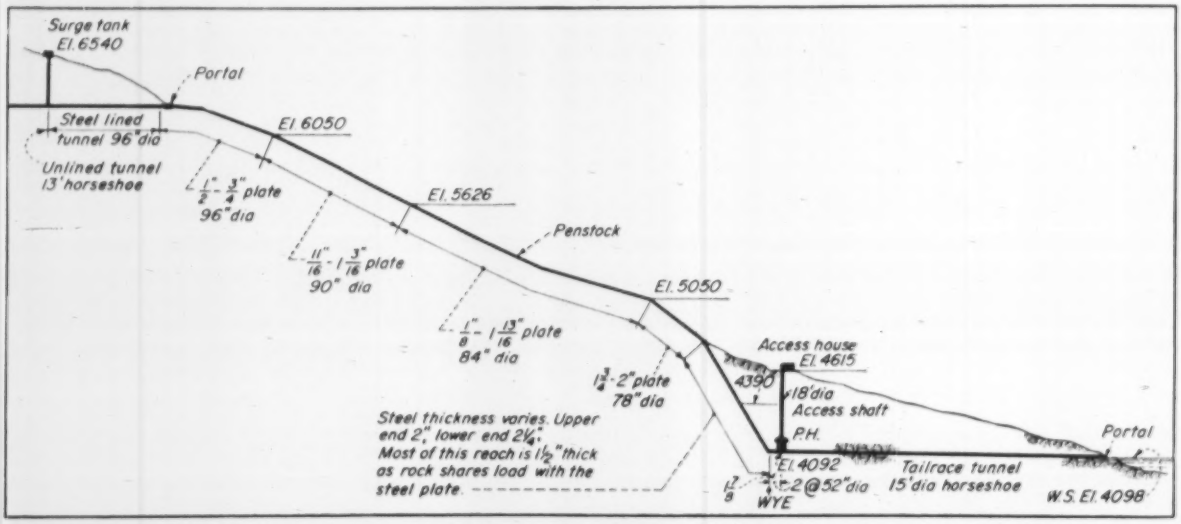
Water will be carried to the plant through a horseshoe-shaped 32,800-ft pressure tunnel and 4,500 ft of heavy steel penstock pipe. The last 850 ft of penstock will be constructed in a steeply inclined tunnel connected to the powerhouse chamber. After driving the plant's two turbine-generators, water will be discharged through 2,000 ft of tailrace tunnel 15 ft wide and 17.5 ft high.

PG&E's Kings River development, being built at a cost of $80 million, also includes Courtright and Wishon Dams, enlargement of the existing Blach diversion dam downstream, Kings River powerhouse and enlargement of existing Blach powerhouse. New generator capacity will total 261,500 kw.

Although there are nearly 100 underground power plants in the world, the Haas power plant is only the fourth to be constructed in the U.S. It is by far the largest in the U.S. and the first to be built since 1913.

The underground scheme was adopted by PG&E at Haas on the basis of economics, being lower in capital cost and producing more power as a result of decreased head loss.

The site involves an ideal massive granite formation. And the profile at the lower end of the high head (2,400 ft) penstock is relatively flat. The de-


Surge tank El. 6540
Portal
Steel lined tunnel 96" dia
El. 6050
Unlined tunnel 13' horseshoe
1" - 3/4" plate 96" dia
El. 5626
Penstock
11/16" - 1 3/16" plate 90" dia
El. 5050
1" - 1 13/16" plate 84" dia
1 3/4" - 2" plate 78" dia
Access house El. 4615
4390
18' dia Access shaft
P.H.
Portal
Steel thickness varies. Upper end 2", lower end 2¼". Most of this reach is 1½" thick as rock shares load with the steel plate.
El. 4092
Tailrace tunnel 15' dia horseshoe
17/8
2@52" dia
WYE
W.S. El. 4098

WATER FROM KINGS RIVER will flow through 6½-mi tunnel, 4,500-ft penstock. Plant will operate at 2,400-ft head.

sign substitutes an unlined tailrace tunnel for a considerable length of steel-lined penstock costing four times as much on a unit basis. It also provides 28 ft more effective head.

Another saving results from placing the penstock deep in an excellent formation. For much of the underground portion of the penstock, steel thickness is reduced by as much as ¾ in. by using higher design stresses in the penstock, which, in this area, will be concrete backfilled and grouted.

The Haas power plant requires an underground excavation 56 ft wide, 105 ft high, and 175 ft long. An 18-ft dia access shaft will lead to the surface containing generator leads, elevator, stairs, ventilating duct, control leads.

The Haas powerhouse has several improved features that further contribute to economy. For example, the shut-off valves are located in the machinery hall excavation rather than in a separate valve chamber excavation as is usually the case. In addition, the 2,000-ft long tailrace tunnel will have a paved invert for use as an access roadway during construction. Finally, the arch of the powerhouse will be supported by rock bolts rather than by a thick concrete lining. The rock bolts are to be coated with 4-in. thick, mesh-reinforced concrete pneumatically placed.

Reclamation Is on the Move

First blasts on Upper Colorado Project will be set off this week; Bureau of Reclamation lists future large construction jobs

President Eisenhower this week pressed a White House telegraph key that flashed simultaneous signals in Arizona and Utah for ground-breaking blasts on two mammoth projects of the Reclamation Bureau.

One signal went to the Arizona site of Glen Canyon Dam, key unit of the billion-dollar Upper Colorado River Development. There, the Mountain States Construction Co. of Denver exploded the initial round for the right diversion tunnel, awarded Oct. 3 to this firm on a $2,452,000 bid for the 2,768-ft bore, 44 to 47 ft in diameter.

The same signal moved rock for the second major unit of the Upper Colorado Project at Flaming Gorge damsite on the Green River near the Utah-Wyoming line.

Jobs at these two sites rank high on the heavy list of construction contracts that Reclamation will put out for bids within the fiscal year that ends June 30. The bureau plans bid calls for 86 major contracts—with an estimated value of some $306 million in the nine months that started Oct. 1. Far bigger, of course, is the estimated overall cost of completing the projects on which these contracts will be performed.

A number of the new contracts call for several years of work. Total value of these upcoming jobs, therefore, exceeds the budgeted expenditures of $174 million for the current year.

Some $28 million of the budgeted spending this year is for Glen Canyon and Flaming Gorge.

Reclamation in January will invite bids on the colossus of U. S. dams—Glen Canyon. The bureau estimates the structural cost of the dam, powerhouse and appurtenances at more than $298 million, and the construction time at eight years.

For Flaming Gorge, only the diversion tunnel will be put up for bids before July 1. Advertising is now scheduled for March. But Reclamation will push ahead with plans for bid invitations as soon as possible on the dam and powerhouse for this site, estimated to cost $57-million-plus and require seven construction years.

Other big jobs on Reclamation's list:

• October

Trinity Dam, California, 30-million cu yd earth and rockfill structure 2,430 ft long and 465 ft high on Trinity River.

Clear Creek Tunnel, Trinity River project, California, 17½-ft-dia concrete-lined tunnel about 11 miles in length.

Helena Valley project, Montana, 300 cfs pumping plant and tunnel 2.6 miles long, of 7-ft-dia concrete lined section.

Howard Prairie Dam, Rogue River project, Oregon, earth and rockfill 86 ft high and 990 ft long.

Fremont Canyon powerplant and pressure tunnel, Oregon Trail project, Wyoming, 48,000 kw plant and 3-mile, 18-ft-dia tunnel, lined with concrete.

• December

Missouri Basin Project, transmission lines, two contracts: One for Fargo-Granite Falls 160-mile line in Minnesota and North Dakota, second for Utica Junction-Sioux Falls 65-mile line in South Dakota, both of them single-circuit, 230-kv, steel-tower lines.

• January

Glen Canyon Dam & Powerplant, Arizona, biggest single contract of the $760-million initial development of the Upper Colorado River. This contract calls for 4,770,000 cu yd concrete arch dam and a 900,000 kw powerplant.

Bostwick Project, Kansas, contract involving 25 miles of open canals and 58 miles of laterals.

Columbia Basin Project, laterals and canals Washington, contract involving 85 miles of laterals and wasteways and eight small pumping plants.

• April

Fort Cobb Dam, Washita project, Oklahoma, 1.8-million cu yd earthfill structure 80 ft high and 7,000 ft long.

Green Springs Power and Keene Creek Dam, Rouge River project Oregon, plant of 16,000 kw capacity, plus earthfill dam 68 ft high and 550 ft long.

• May

Paonia Dam, Colorado, 1-million cu yd earthfill structure 166 ft high and 660 ft long.

Stanaker Dam, central Utah project, 1,950 cy earthfill structure 138 ft high and 1,800 ft long.

Willard Dam, Weber Basin project, Utah, earthfill structure about 32 ft high and 11 miles long on the Great Salt Lake.

• June

Frenchman–Cambridge Project, Nebraska, one contract involving 21 miles of canals and 29 miles of laterals.

Rain Broke School Roof

Principal cause of the collapse of the prestressed concrete cafetorium roof at the Blankner Elementary School, Orlando, Fla., was an accumulation of water on the deflected roof deck resulting from a torrential rain. So says a committee of engineers appointed by the President of the Prestressed Concrete Institute.

"This condition," the committee reports, "was greatly intensified by a continuous runoff from the contiguous pitched roof. The combined effect of this water induced excessive deflections progressively and thereby greater loads on the prestressed concrete double-tee slabs, with commensurate lateral pressure on the walls."

When the 56-ft pretensioned beams—designed for a 20 psf live load—collapsed, the building had been completed about one week but was unoccupied (ENR Sept. 20, p. 27).

The committee believes that use of reinforced pilasters in the 8-in.-thick 14-ft-high concrete-block bearing walls and of continuous concrete tie-beams would have averted the collapse.

New technical center sets stage for. . .

A New Era in Transportation Research

When the new Transportation Center at Northwestern University in Evanston, Ill. was formally opened Oct. 5, it marked the culmination of three years of planning to provide better service, research and education for the transportation industry.

Basically, the center—established through the support of the transportation industry as a whole—will provide an integrated approach to all phases of that industry's problems and opportunities. Its realistic program embracing economics, commerce, engineering, regulation and service, will be unlike any other program now operating, according to Director Franklin M. Kreml.

The center's 22-man advisory committee is headed by Fred G. Gurley, president of the Santa Fe Railroad. It is made up of presidents and vice presidents of leading companies and corporations engaged in all segments of the national transportation system: railroads, airlines, ocean and inland waterway shipping lines, pipelines and highway transport.

Organizational plans call for a staff of 50, an ultimate annual budget of $1.5 million and development of the "most complete" transportation reference library in existence. In addition to providing research and consulting service to the industry, the center—operating within the administration framework of Northwestern—will offer undergraduate courses. It also will offer studies at the graduate level leading to a Master's degree as well as special courses for personnel in the transportation field.

One of the unique features of the Transportation Center is that it presents a means of tackling the many problems of transportation without rivalry on the basis of special interests. The program is set up to furnish the various sections of the transportation industry with a supply of young engineers and trained personnel to fill management and other important positions in years to come.

According to Director Kreml, on leave from Northwestern's Traffic Institute, the new Transportation Center will avoid areas in which adequate work is now being done by other groups. Instead, it will concentrate on inter-relations of the industry's various segments, and upon such basic matters as public policy, regulation, new methods of transportation and economics. In addition, specific research projects will be undertaken on special contract arrangements.

Says Kreml: "We believe our threefold effort of research, education and service will ultimately provide the answers needed for the industry's own development."

Leaders of the transportation industry voiced their enthusiasm at ceremonies officially opening the new transportation center.

"Northwestern is giving the transportation industry an opportunity to make a profitable investment—one that will pay us substantial dividends in the form of better-trained men for the transportation field, unbiased research on a scale no industry is equipped to carry on, and expert consultative services." This came from Fred G. Gurley president of the Atchison, Topeka & Santa Fe Railway Co.

Said Northwestern's president, Dr. J. Roscoe Miller: "Developed on the basis of broad-scale and continuing cooperation between Northwestern and the transportation industry, the center can render greater service not only to the industry of transportation, but to the national economy and hence to our national social and political life."

"The establishment of this center signifies the beginning of an era in transportation," said Walter F. Mullady, president of Decatur-Cartage Co., Chicago. "It will make vast contributions, not only to the training of future personnel, but also to the advancement of those presently employed in transportation. In addition to the educational function to be performed, the center also will provide opportunities for carrying on objective research and studies that will be of inestimable benefit to all forms of transportation, as well as to state and federal agencies charged with transportation regulation."

"The course is a unique educational opportunity for men in junior executive and middle-management positions in the transportation industry, general business, governmental agencies, and the military," said Director Kreml.

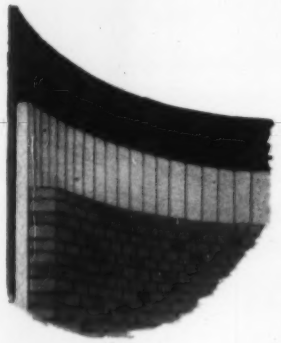
Kreml stated that the first general course in transportation at the center will begin next Jan. 7 and continue through Mar. 15.

Tuition for the ten weeks' course is $1,000. Major subjects will deal with:

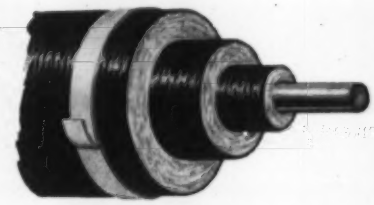
- Understanding the place of transportation in producing a higher level of living.
- Alternative way of doing the transportation job.
- Planning the transportation job.
- Competition within transportation.
- A better understanding of the human beings who make the transportation plant run and who buy transportation services.

Chicago "Elevated" Will Try Moving Ramp

A moving ramp soon will be installed to convey passengers to and from an elevated transit station in Chicago's South Side. Similar in design to one installed in the Hudson-Manhattan terminal in Jersey City, N. J., in 1954, this is the first American application to elevated transit service, according to manufacturers, Stephens-Adamson Mfg. Co., Aurora, Ill. A Chicago Transit Authority spokesman explained that the new "speedwalk," a continuous belt conveyor passing over roller banks, will carry passengers upward at a 15 deg. angle in the morning, down during peak rush hours of the evening.



High temperature refractory backing applications for Kaylo-20 heat insulation . . . to 1800° F.!



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Industrial Insulations

from sub-zero to 1800°F.! from one dependable source!

Long Sault—its days are numbered...

The spectacular International Rapids will flow no more. Constructors of Long Sault Dam are about ready to cut off the main channel of the mighty St. Lawrence and push its water through a man-made course, over the portion of dam they have constructed.

Big Show Now Only Days Away: Stage

When Cut "F" on the St. Lawrence power project is opened at about the end of this month, a spectacular stretch of river will be no more. The Long Sault, after eons of flow, will run dry.

All steps toward dewatering the rapids—so that the left half of Long Sault Dam can be started—have been studied in detail, by engineers and contractors concerned, at the hydraulic laboratories of the Hydro-Electric Power Commission of Ontario at Islington, outside Toronto. The 1 to 80 model of the Long Sault stretch has all the movable and removable features necessary to simulate what will happen at all points on the river as diversion is accomplished.

Cut "F" is 100 ft deep and 600 ft wide. Plugs have been left across both its upstream and downstream ends. The downstream plug will be removed first, to fill the cut with water. South channel water flowing into the cut will have a level about 30 ft lower than that in the main channel.

Ontario Hydro engineers plan that the water in the cut will be raised by closing the gates of the first half of the dam until it is at a level with that outside the upstream plug. It is expected that river flow at the time will be about 270,000 cfs.

BEFORE: With Cut "F" excavated but still plugged at both ends (lower right), the main flow of the St. Lawrence River is still down the Long Sault Rapids.

As the upstream plug of Cut "F" is slowly breached, the sluices in the finished section of Long Sault Dam will be opened to let the increased flow of

Cofferdam "E" is slowly building up, a three-month cableway placement of rock

Upstream and downstream cofferdams at the dam will come out

Cut "C" now diverting the south channel will be plugged

Cut "F" will be opened

Is Set for Big St. Lawrence Diversion

AFTER: With cofferdam placed across head of rapids (lower left) and Cut "F" opened, the total river flow will now be forced to pass through the Long Sault Dam.

water through. It is estimated by the contractors that it will take about a month to excavate completely the earth plug at the upstream end of Cut "F."

While this plug is being excavated, work will continue on the 1,000-ft cofferdam "E" across the head of Long Sault Rapids. Cofferdam "E" is now being built by aerial cableway, supported by towers at each shore of the rapids. It's a three-month rock-placement job.

When this cofferdam has been completed, and all the water which formerly flowed through the Long Sault Rapids is flowing through Cut "F" and the first half of the Long Sault Dam, a downstream cofferdam will be built from Barnhart Island to Long Sault Island. Work on this structure has already started.

The rapids will then be dewatered; the area for constructing the second section of the Long Sault Dam will be dry.

Upon completion of the Long Sault Dam, the upstream Cofferdam "E" and the downstream cofferdam will be eliminated, and the water allowed to flow in its old channel.

But it won't be the same. Instead of a racing, romantic rapids, this stretch of the St. Lawrence will wind up a deep, still pool, backed up by Long Sault Dam and the Barnhart Island power dam downstream.

BIG—Without BULK!

New 900 cfm AIRVANE Rotary

Here's a 900 cfm portable compressor that is only 12 feet long—that has a 14'10" turning radius—that is ruggedly built of high-strength steel—yet weighs as much as 3700 pounds less than other 900 cfm portables.

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JOY

CONSTRUCTION EQUIPMENT MANUFACTURERS FOR OVER HALF A CENTURY

Watertight hairline cracks are practically the only changes in . . .

Concrete Tunnel Lining After Twenty Years Use

How does concrete tunnel lining—and painted steel-plate lining—stand up to twenty years of use, with discharge flows ranging up to 25,000 cu ft per second?

A recent examination of the Missouri River's Fort Peck Dam outlet tunnels—uninspected since they were put in operation almost twenty years ago—proves beyond question the soundness of their design and construction.

Condition of the four tunnels is excellent—repairs required are negligible; they should last out the normal expected life of the project, with little maintenance for many years to come.

These are the conclusions resulting from recent inspection work done under the direction of Col. E. H. Dillon, Corps of Engineers district engineer for the Fort Peck Montana District.

• **Nature of the job**—The four parallel tunnels that serve the Fort Peck project are cut through dense marine shale, which underlies the reservoir and dam. Each is about a mile in length and is 24 ft 8 in. in diameter. Heavily reinforced concrete, 36 in. thick, lines the tunnels, which have a steel ring-beam ground-support system (ENR Aug. 13, 1936, p. 238). The downstream portion of one tunnel used as the powerplant intake, has a riveted steel-plate embedded liner; it was inspected in 1941.

After dewatering, inspection consisted of accurate levels run throughout the length of each tunnel; a detailed crack survey; and careful measurements, every 400 ft, of both horizontal and vertical diameters. To reference the measurements and location of cracks, stationing was done and permanently marked on the tunnel walls.

• **What was found** — The inspection team came up with a number of satisfying negatives:

• No differential settlement or movement from original position of the tunnels has occurred.

• No measurable deformation of the tunnel has resulted through earth movement or changes in earth loadings brought about by impoundment of the lake.

• No offsets at the moderate number of circumferential hairline cracks that had developed—or at construction joints—were noted. Also, a white, firm calcium carbonate or sulfate deposit had leached through and filled the cracks, making them watertight.

In one tunnel the deposit had gone so far as to produce stalactites 3 in. long and ¼ in. in diameter. These were probably formed during the last season when the tunnel was not in use, and when the lake had been dropped 70 ft. This permitted groundwater outside the tunnel liner to seep through the hairline cracks and form the stalactites, much as happens in natural caves.

Piezometric measurements of water pressure external to the tunnel liner were made at four different points in this tunnel. Only one tap yielded water under pressure and that was only 16½ psi. This led to the conclusion that a fault in the shale in that area had collected seepage over the years; however, the water had not been transferred along the liner plates to other areas.

• No part of the concrete surface will require any repairs. Except for a few spalled areas of minor importance at the crown and some minor roughness in the invert, the surface is essentially in the same condition as when the tunnels were placed in service.

• Ninety-five percent of the paint (brushed hot-applied coal tar enamel)

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Use this coupon to get your copy of this 16-page catalog "Yeomans Heavy-Duty Wet Pit Pumps" (catalog 3007) . . or to arrange for a booking of the 15-minute, sound slide film on wet pit pumps, "The Choice Is Yours."

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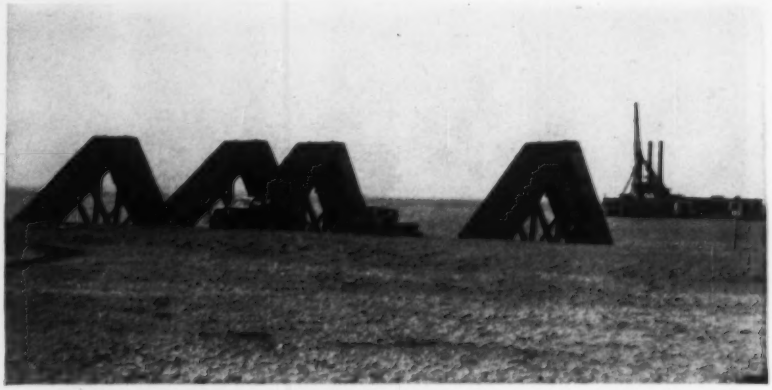
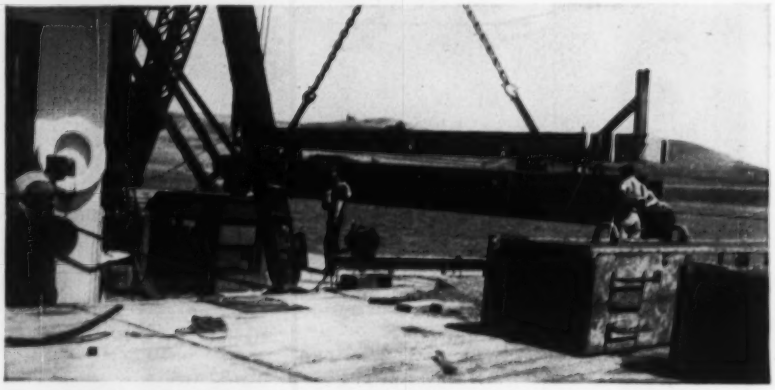


TRASH RACKS removed from tunnel intake are stored on bank, while derrickboat and diving barge prepare to place stop logs for dewatering.



STOP LOG, one of 11 used to close tunnel intake, is swung from deck of derrickboat.

on the steel-plate-liner section of the power tunnel was found to be intact and giving full protection.

• **Entering the tunnels**—Dewatering the tunnel for inspection was a routine, yet interesting, procedure.

At a distance of one-third of the tunnel length downstream from the intake works, are the main control and emergency gates, so that inspection downstream of this point is easily accomplished. However, dewatering the section upstream from the gates involved the heavy and exacting job of removing trash racks and placing stop logs. This was a job for divers. Peterson Diving Service of Chicago got the diving contract with a bid of $33,000. Corps of Engineer equipment available included a 50-ton-capacity, 210-ft derrickboat, two 40-ft tugboats, and a 60-ft diving barge. Government-hired labor handled this equipment.

First step was to remove the trash racks, each a wrought-iron triangular assembly weighing 25 tons. The tops of these racks were under 60 ft of water. Divers connected the lifting equipment to lifting holes in the tops of the trash racks. The racks were then raised to the surface and put ashore.

Next, 11 stop logs, 22.5 tons apiece, were slid into manganese-bronze guide slots whose entrances were 80 ft down. Finally positioned (the lowest, 155 ft below the surface) and caulked, the stop logs effected complete closure. Divers made use of a special pipe template to reproduce the profile of the bottom-log seat, so that corrections could be made in the stop-log seal before this log went down. The profile was reproduced by steel pins at 6-in. centers along the template, which could be pushed down by the diver to the bearing area to be occupied by the stop log.

In placing the stop logs the divers were aided by guide cables and snatch blocks anchored to the top of the intake structure 80 ft below the water surface. These cables drifted the logs to the slot as they were lowered from the derrickboat.

After inspection, the tunnel was rewatered (by gates in the stop log barricade); stop logs were removed and trash racks replaced.

Procedure was the same for all four tunnels except that stop logs were left in place in one of the outlet tunnels, in anticipation of its modification to power use when a new generating unit is added to the power plant.

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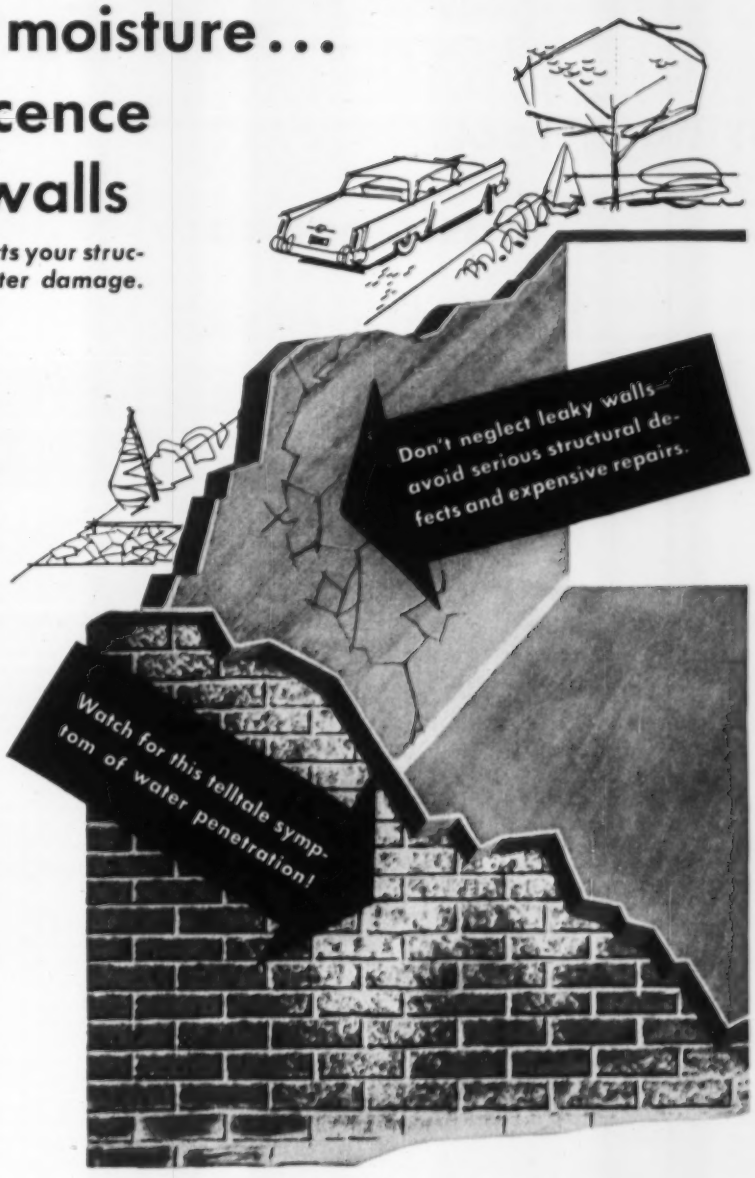
seals out moisture... stops efflorescence on masonry walls

Silicone base water repellent protects your structures from inside and outside water damage.

Dehydratine No. 22 is no ordinary "surface" repellent. It functions on the principle of "negative capillarity" *in depth*. The highly penetrating characteristics of Dehydratine No. 22 set up a valve-like action within the masonry that permits vapor to escape *outward*, but stops the capillary absorption of solid drops of moisture from passing inward.

Dehydratine No. 22 reduces soiling and discoloration

Dirt and soluble stains cannot enter the pores of masonry treated with Dehydratine No. 22. Thus foreign particles trapped on the surface are readily washed off by rain. Owners and operators of concrete or light-colored stone buildings find that this saves money by eliminating difficult and expensive cleaning operations. Since Dehydratine No. 22 is effective against "white bloom" or efflorescence, it preserves the original beauty of the exterior without changing the color or texture of the surface. It pays to protect your structures against *inside* and *outside* water damage with Dehydratine No. 22.


Don't neglect leaky walls—avoid serious structural defects and expensive repairs.
Watch for this telltale symptom of water penetration!

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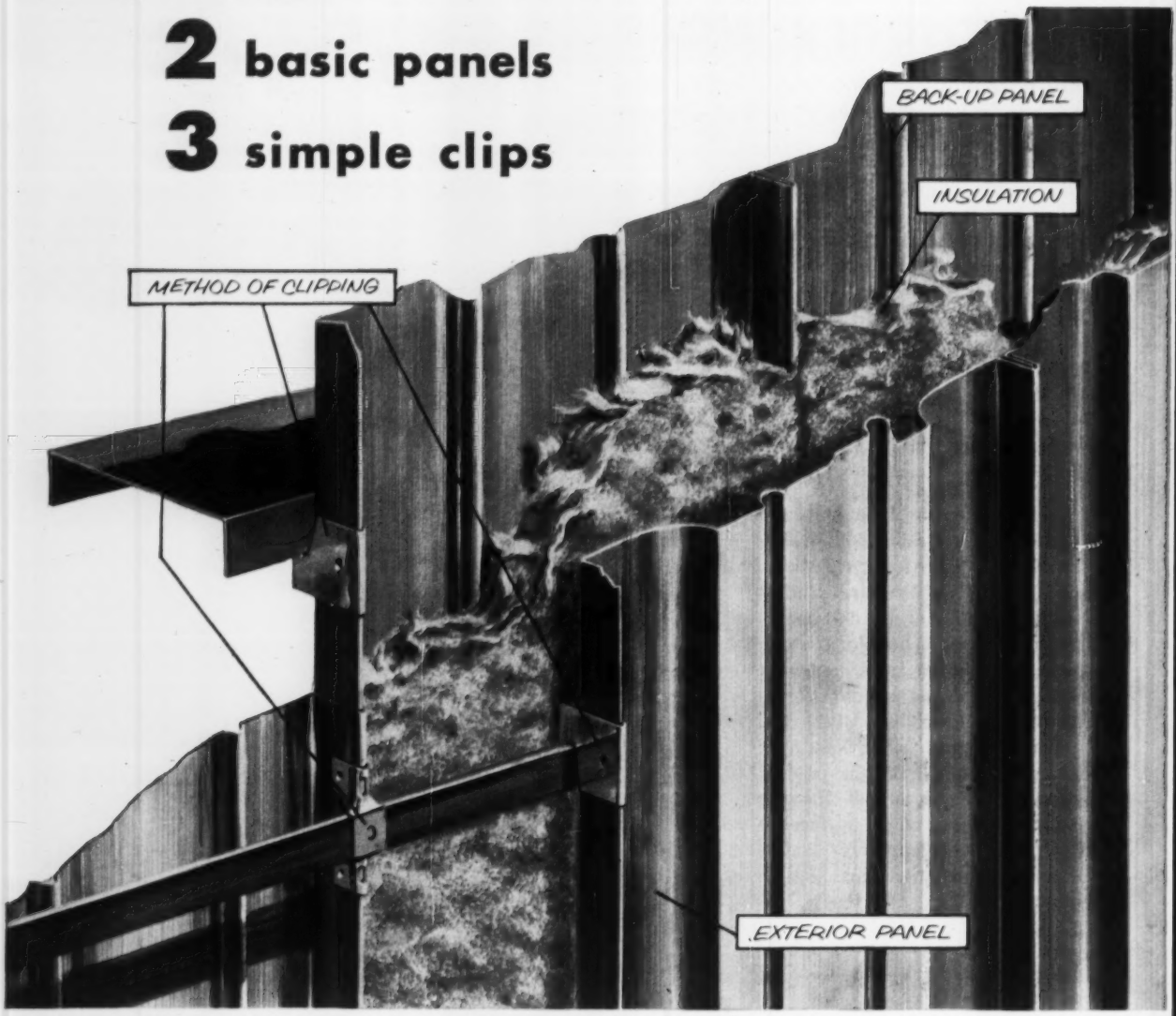
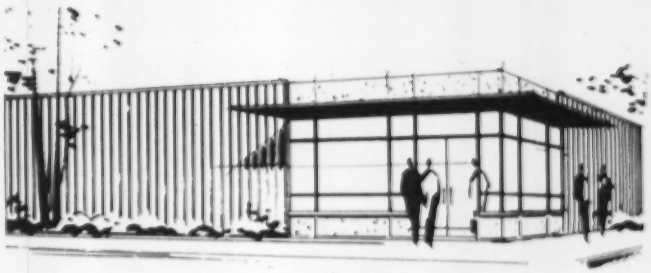
Enclose a complete building with new *Stran-Satin* Curtain

using 1 tool
2 basic panels
3 simple clips



The new Stran-Steel curtain wall system with exclusive *Stran-Satin* combines a satin-smooth finish, free of spangled patterns, with the protection of a noncorrosive zinc coating. You get the low cost of steel, plus the eye-appeal of far more expensive materials. Stran-Steel curtain wall system consists of two basic panels and has a simple field erection assembly technique. Panels are never pierced or marred by bolts, screws or rivets. By using special clips and a crimping tool, you get a smooth, leakproof surface. This assembly technique provides a modern method of wall or fascia construction for industrial, commercial, recreational, school, hospital or other public buildings. And buildings go up fast so other trades can begin work sooner.

Wall System



Back-up panel is clipped to horizontal girts of the building's framework. At the joints, the panels overlap and interlock.

Ten-foot steel bars are clipped horizontally and are on 4-foot centers. The clips are crimped to provide a permanent assembly.

Noncombustible insulation is inserted between the back-up panel and the steel bars.

Exterior panel is clipped to 10-foot bar and crimped in place. Next panel overlaps and covers clip for an unbroken surface.

Stran-Steel curtain wall is a quality product designed to meet strict architectural requirements.

EXTERIOR PANEL

Exterior panel is heavy gage steel with *Stran-Satin* finish. Continuous lengths up to 54 feet can be furnished in three gages—18, 20 or 24.

BACK-UP PANEL

Back-up panel is also available up to 54-foot lengths in three gages with exclusive *Stran-Satin* finish. Offset construction eliminates metal-to-metal contact increasing insulating efficiency and reducing condensation.

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Sections are designed for 1½-inch batt-type insulation. With a "U" factor of 0.14, this panel has the insulating efficiency of a 16-inch masonry wall.

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To serve as the terminal for a huge mining and beneficiating plant, a . . .

Great Lakes Port for Shipping Taconite

Alonzo DeF. Quinn
Vice President and Chief Engineer
Frederick Snare Corp.,
Contracting Engineers
New York, N. Y.

On the north shore of Lake Superior, 80 miles from Duluth, a new port to be known as Taconite Harbor is rapidly nearing completion. It will be the shipping terminal for a tremendous plant costing over $300 million to be constructed at Hoyt Lakes, Minn., about 75 miles inland from Lake Superior.

This gigantic venture is for the mining and beneficiating of taconite—a low grade iron ore found in that area. The enriched ore, in the form of pellets about the size of walnuts, will be transported by railroad—a part of the present construction—to the harbor. There it will be loaded into ore carriers which will take it to various Lake ports for use by steel mills.

Erie Mining Company—the owner and principal in this project—is a corporation in which Bethlehem Steel Co. has a 45% interest; Youngstown Sheet & Tube Co., 35%; Interlake Iron Corp., 10%; and the Steel Company of Canada, 10%. Pickands Mather & Co., Cleveland, is manager. Frederick Snare Corporation was selected to design and supervise the work, and a contract was let by competitive bids to the Dravo Corporation, Pittsburgh, for constructing the port facilities.

Prior to letting the general contract a preliminary contract was awarded in the fall of 1953, shortly after the design was started, to Peter Kiewit Sons' Co. for construction of about 1,300 ft of the east breakwater in a partially finished condition. This afforded some protection for the general contractor's floating equipment. Rock for construction was obtained by making an excavation on shore in back of the coal dock, and from several miles of railroad cut-and-fill which were also included in the contract.

Active operations at the harbor by Dravo Corporation were started in the spring of 1954 and should be completed this fall.

• **More ore needed**—This work has been made necessary by the increasing demand for iron ore suitable to meet the needs of the nation's steel mills. The present sources of ore are rapidly becoming exhausted and most of the big companies have been exploring and developing new sources of supply, not only in this country but also in areas abroad.

One of the more recent developments which has opened up a new source of ore has been the development of an economical and practical method of enriching some of the available lower grade domestic ores so as to render them more economical to transport and more suitable for blast furnaces. Much of the area in Minnesota, which has been furnishing the enormous quantities of high grade iron ore utilized in the steel industry during the past decades, is underlain by massive strata of taconite—an extremely hard rock containing 25% to 30% iron. There is known to be a tremendous quantity of it, but, of course, the iron content is much lower than demanded by the industry.

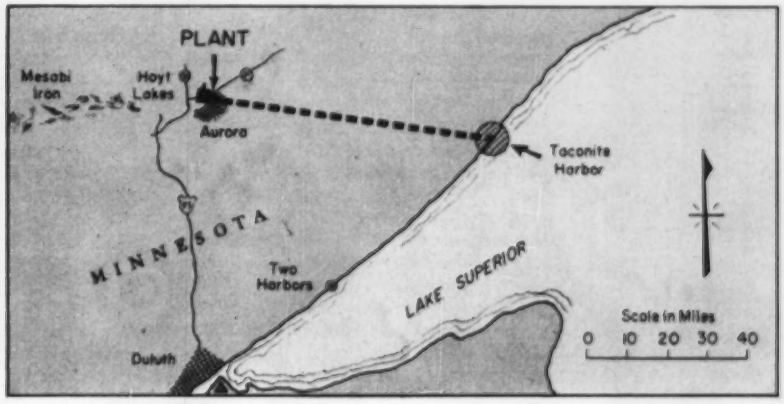
In order to beneficiate this ore for use in the furnaces it is necessary to process the taconite. Erie Mining Company has been one of the pioneers in this field and for several years has been operating a pilot plant at Aurora, Minn. (ENR, Dec. 11, 1952, p.40).

• **Selecting the site**—When it was finally decided to proceed with the construction of this tremendous project it was necessary to find a suitable site along the north shore of Lake Superior, within the shortest possible distance of the plant to be constructed at Hoyt Lakes, for a shipping terminal.

The shore is for the most part quite rocky and precipitous, exposed to severe storms from the northeast where the unimpeded reach or fetch of wind and wave is some 250 miles. Waves on the order of 20 ft from trough to crest have been known to occur, and those of 5 to 10 ft occur quite frequently, making it impracticable to ship out of an unprotected harbor. Natural harbors along

◀ **TACONITE HARBOR,** for loading pelletized taconite from Erie Mining Company's beneficiating plant, is formed by extensive breakwaters and two existing islands in Lake Superior.

PLANT to be served is 75 miles inland from the new harbor, which is 80 miles from Duluth.



Is Built by Ore Industry

the lake shore are few and far between.

Fortunately, at a place almost directly east of the plant site there are two islands lying about 1,500 ft offshore and so situated as to form the nucleus of a good harbor if supplemented by some additional breakwater construction.

• **Storm protection**—In planning the harbor, consideration had to be given to protection against the severe storms from the northeast, as well as storms of lesser intensity from other directions. Since from a westerly direction the maximum waves are not expected to exceed 5 ft, the entrance to the harbor was placed at this end which could be left more open to permit vessels to approach the dock directly on a reasonably flat angle for easy mooring.

As shown in the accompanying aerial photo, protection from storms from the south is provided by filling in between the two islands and by extending a breakwater arm from the easterly island, a distance of about 1,100 ft. Fortunately, the water was relatively shallow here as a rock shelf extends out from this island is within about 300 ft of the end of the breakwater. The opposite condition existed at the end of the east breakwater where the water is over 100 ft deep. This breakwater arm extends out from shore a distance of about 1,700 ft. At the extreme end of the arm the width of the base is close to 400 ft.

• **Building the breakwaters**—Because of the availability of rock from the harbor excavation, except for the heavy armor stone, "all-rock" breakwaters were adopted. The cores were built by starting from shore and dumping from trucks Class "A" rock consisting of stones weighing less than 5 tons obtained from the harbor excavation. This fill was carried above water level and served as a roadway on which to back out and progressively extend the breakwaters offshore.

The armor stone, with individual pieces weighing from 2 to 15 tons or more, was hauled down by trailer trucks from a nearby quarry and placed on the rock core by derrick boat. As shown in the drawing on page 40, the core material is completely protected with armor rock; the heaviest stone extending from a short distance below water level to cover completely that portion above water where the maximum wave force occurs.

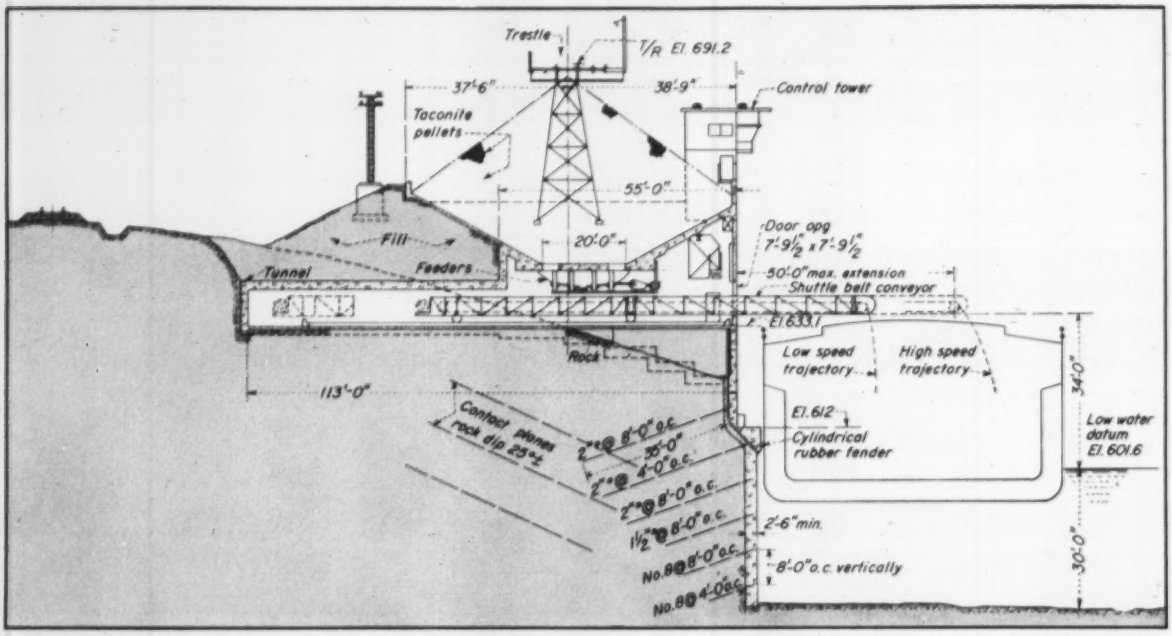
• **Model tests**—The design of the harbor was checked by model tests both for the stability of the breakwaters and for quietness of the water inside the harbor when subjected to the maximum expected wave action. Dr. Lorenz Straub of the University of Minnesota was retained as a consultant for this work.

The actual tests on the strength of the breakwaters were performed at the University's St. Anthony Falls hydraulic laboratory, Minneapolis. The model tests on the layout of the harbor were made at the laboratory of the Waterways Experiment Station, Vicksburg, Miss.

• **Dock design**—As to the design of the dock, with its storage and loading facilities, the long and comparatively narrow shape of the harbor pointed to a bulkhead type of dock. This, together with the necessity of supporting a very considerable tonnage of pellets stored as closely as possible to the boats alongside—in order to expedite and simplify loading operations—suggested cutting back the comparatively straight rocky shoreline in such a way as to widen the harbor and at the same time provide suitable foundations for storage bins.

In order to make it possible for boats to dock along the wall it was necessary to excavate rock and overlying sand and gravel to a depth of 30 ft below lake level. This meant the removal of nearly 1 million cu yd of material either by underwater blasting and dredging or in the dry behind a cellular cofferdam to shut out the lake. The latter method was adopted by the contractor and proved to be most economical as well as simplifying the excavation for the dock wall and its construction.

• **Cellular cofferdam**—The cellular cofferdam, which was installed in about 35 ft of water to hold back the lake for a distance of well over 2,000 ft along the



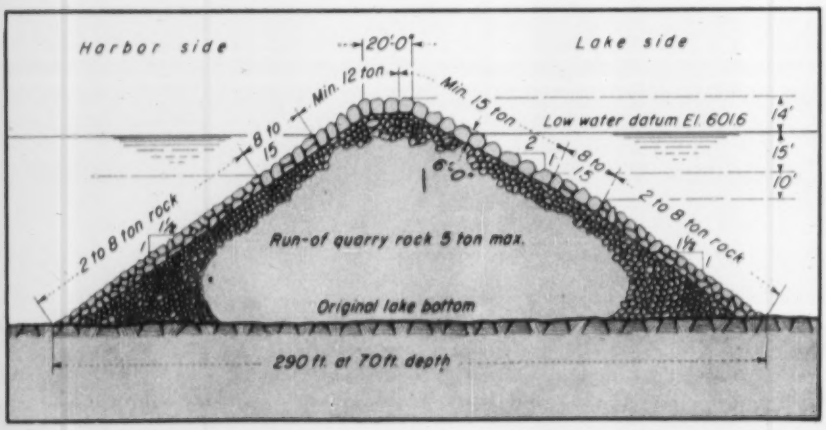
LOADING DOCK anchored to rock face and superimposed ore bins will speed loading of Great Lakes ore carriers with taconite pellets.

shore, ranks among the few of its kind in size and boldness of operation. The cells are 50 ft in diameter and the top of the sheetpiles was set 12 ft above low water lake level to prevent overtopping by storm waves. The cofferdam was constructed in two parts; the first taking in the entire dock wall and the second, and much smaller one, the area of rock excavation beyond the westerly end of the dock.

The first cofferdam was later subdivided into two sections by a cellular wall installed about midway along the dock. This made possible the flooding of the easterly end and removal of a sufficient number of sheet pile cells to permit boats to tie up and unload at the coal dock prior to the completion of the entire dock wall, as shown in the aerial photo. The contract called for this early completion to permit rail and accessories for the railroad and other materials and equipment to be shipped by boat and unloaded at the harbor last fall. In all, about 7,500 tons of sheetpiling were used for the cofferdam construction. All of this will be salvaged, and a very high percentage will be in satisfactory condition to use again in some other job.

In excavating for the dock wall the dock face was first line drilled on 1-ft centers. As the rock was removed from the face there was evidence of contact planes, some of which were filled with fine-grain elastic materials of rock fragments, which could be removed with a pick. Many of them were water-bearing, being fed from the high ground above. The rock in back of the face was cement grouted both before and after the excavation was made.

The original design of the dock wall had been based on using a relatively thin concrete lining which would be anchored to massive rock by short dowels on close spacing. Consequently, the condition of the rock face gave some cause for concern, particularly since it had to support a surcharge load of about 3 tons per sq ft from the weight of the storage bin and contained iron ore pellets.



BREAKWATERS of quarry-run rock are armored with 2- to 15-ton stone to resist wave damage.

• **Core drilling**—From the general geology of the area and from earlier exploratory drilling it was known that the rock was a fairly good amygdaloidal (mineral-bearing, almond-shaped) basalt which had been laid down in successive surface flows having a strike almost parallel to the shore and a dip of roughly 25 deg toward the lake. It was then decided to make a more extensive survey of the rock in back of the face on which the pellet bins were to be supported. Three core borings were made every 48 ft on lines perpendicular to the dock face; the holes being located 10 ft, 30 ft and 50 ft back of the face. Cross sections were then plotted and from the observations made on the exposed rock face it was possible to determine the extent and depth of the contact planes.

• **Longer anchor dowels**—Because of the importance of the work it was decided to call in a consulting geologist to ex-

EXTRA VALUE... EXTRA PERFORMANCE IN A 1/2-YD. MACHINE!

THE LORAIN 15

EXTRA HOE VALUES! — *Buckets from 24" to 40" (¾ yd.) — 2 Boom lengths — 14' and 16'.*

Though nominally rated as a ½-yd. machine, the extra weight, strength and stability of the Lorain-15 enable it to match the productive capacity of many higher rated, more costly machines. As a shovel, hoe or dragline, it can do those *extra-size* jobs . . . with long life . . . freedom from operating delays . . . at greater profit to you. The Lorain-15 proves these points . . . if you will check the brief listing of features below and then check with your Thew-Lorain Distributor, you will see what we mean by "extra values." You make the comparison—then decide!

EXTRA CRANE BOOM VALUES! — *For dragline, clamshell and lifting service feature new square-tubular-chord boom that permits maximum lifting capacities, greater digging ranges.*

BIG-TIME FEATURES in the ½-yd. L-15

TURNTABLE FEATURES

● 5 identical interchangeable shoe clutches • One-piece, all-welded, truss-reinforced, rigid turntable bed • 19 anti-friction bearings on power shafts and clutch drums alone • Oil-enclosed cut gears • "E-Z" operating controls—effortless action; fast response; longer clutch life • "Hydra-Ease" power control of crawler steering, tread lock, house lock, and shifting of swing-travel jaw clutches.

CRAWLER FEATURES

● 16" cast-steel tread shoes—22" & 29" available • Oil-enclosed crawler travel mechanism • 4-way position tread and travel lock, hydraulically powered and operated • Replaceable tread pin bushings available.

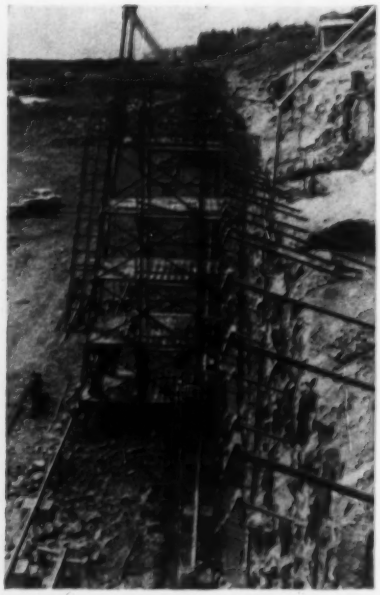
BOOM FEATURES

● Usable as shovel, crane, clamshell, dragline, hoe • Crane boom of square-tubular-chord design; minimum weight, maximum capacity and reach • Power load lowering standard • Ability to "back-down-the-load" • Precision boom lowering device for cranes • Independent crawler travel available—a big help in drag and hoe operations. Permits simultaneous hoist, swing and travel.

THE THEW SHOVEL CO., Lorain, Ohio

THEW LORAIN

MOBILE FIVE DECK PLATFORMS drilled holes in rock facing, set and grouted anchor rods (foreground), while tall cranes set panel forms in place (background) to form reinforced concrete face of loading dock.



MOBILE JUMBOS for drilling and grouting anchor rods moved on rails carried on concrete pedestals.

amine the rock face and study the information which had been obtained from the core borings. Some years ago Dr. Adolph Sandberg, now head of the Geology Department of Louisiana State University, made a survey of this area and his findings were published by the National Geological Society.

He was found to be available for this assignment and made several trips to the site during the excavation for the dock face. Following his recommendations the design for anchoring the dock face wall to the rock, with short dowels at close spacing, was modified to using a fewer number of larger and longer rods so as to anchor the wall further back into the rock and to make it and the rock act as a monolithic mass. As shown in an accompanying drawing, some of these rods penetrated as much as 35 ft into the rock and were 2-in. in diameter.

• **Drilling and grouting**—The drilling, placing of rods and grouting constituted a major undertaking which the contractor handled very well by developing efficient mobile drilling and grouting platforms moving along the rock face on rails. (See photos). Two such towers were used having a platform for each horizontal row of dowels. The first tower was used to drill the holes and the second one to set and grout the anchor rods. The holes were drilled on an incline of about 20 deg below the horizontal. Before placing the anchor rods the holes were partly filled with grout consisting of one part cement, one part sand and one part "Embeco" (an expanding agent to prevent shrinkage). Previously, pull-out tests had been made to prove that the anchor rods would develop their full strength before leaving the rock.

• **Neat forming method**—Prefabricated panels were used to form the concrete dock lining wall. They were handled by crane and were attached to the anchor rods projecting from the rock face, making it unnecessary to brace the exterior form. The concreting of the 42-ft-high wall was done in two vertical lifts and in horizontal pours 48 ft long.

The upper part of the dock face wall is corbelled out and has a 10-in. hollow rubber fender, draped on ⅞-in. wire rope, so as to absorb the impact from docking of boats and to keep the hulls from rubbing against the lower part of the concrete wall. Because of reduced maintenance costs this improved type of shock absorbing fender system is now replacing the more conventional timber fenders.

• **Pellet storage**—One major requirement was to store sufficient pellets at the harbor to provide for the initial operation at the rate of 7.5 million tons per year. This calls for a storage or surge bin of 100,000 tons capacity covering a length of 1,200 ft, or two berths for the ore carriers.

Provision has been made for extending this bin in the future another 600 ft to take care of the third berth along the dock, and to store an additional 50,000 tons of pellets.

The front wall of the bin is located 5 ft 2 in. in back of the face of the dock to provide room for a walkway to handle a ship's mooring lines. The bin has a maximum width of 74 ft at the top. Its sides and bottom slope on an angle of 28 deg with the horizontal to draw-off openings located every 48 ft along its length.

The ore pile above the top of the bin stands on a slope of 35 deg above its peak, and on the centerline of the bin there is located a railroad trestle from which bottom dump cars will unload ore directly into the bin. The top of rail is 79.2 ft above the dock which is at 10.4 ft above low water lake level. The bin is being constructed of reinforced concrete.

• **Loading operations**—The location of the draw-off pockets along the bottom of the bin at 48 ft c-c, is of special significance because, generally, the hatches in the large ore carriers are spaced 24 ft c-c. Therefore, a tunnel or gallery perpendicular to the dock face is located under the bin every 48 ft. When loading a carrier the ore in the bin discharges or is fed by means of reciprocating feeders to shuttle conveyors with 42-in.-wide belts, each capable of delivering 1,500 tons per hour at a belt speed of 500 fpm, or 750 tons per hour at half speed.

The conveyor-supporting structures

IN WITH THE NEW! "Century" Asbestos-Cement Pipe ready and able to replace more than 10 miles of a metallic pipeline weakened by external corrosion for the Jefferson County Fresh Water District #1, Sabine Pass, Texas.

Soil conditions led to the switch to non-corrosive "Century" Asbestos-Cement Pipe. Contractor: Hardin Construction Company, Houston, Texas.

non-corroding!

K&M "Century"® ASBESTOS-CEMENT PRESSURE PIPE

Throughout the country more and more communities are relying on water mains of K&M Asbestos-Cement Pipe . . . made of asbestos fiber and portland cement. It resists corrosion, is non-electrolytic, two of the many advantages which make for durability.

Pumping costs low and stable! There is no clogging to reduce flow and increase pumping costs with K&M Asbestos-Cement Pipe. It is non-metallic . . . non-tuberculating. Its bore remains smooth and clean.

Lower in initial cost! K&M Asbestos-Cement Pipe is light in weight—easily and inexpensively transported, stored and handled.

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The light weight of this distinctive pipe makes for faster, easier handling. Naylor's exclusive structure provides extra strength and safety for dependable performance no matter how rough the going. And, the one-piece Naylor Wedge-Lock coupling gives you the fastest method of connections to simplify installation and cut costs.

If you are looking for ways to speed up pipe line operations in construction service, get the facts on Naylor pipe and Wedge-Lock couplings today.

Ask for Bulletin No. 507.

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are mounted on wheels that roll on rails set in the conveyor floors. They are counterweighted and can be extended to cantilever out 50 ft beyond the face of the bin, or they can be retracted completely inside the tunnel under the bin. There are 25 of these conveyors for the 1,200 ft bin or a maximum of 13 for one vessel. Since the largest Great Lakes vessels have only 20 hatches, and only half (10) can be loaded at one time, the capacity is more than sufficient.

• **Optimum loading time** – This will make it possible for a boat to be fully loaded by moving it only once for a distance of 24 ft. The conveyors can be operated at full speed or half speed, the latter being necessary in order to trim the inboard side of the vessel. The entire conveyor loading operation for one vessel (10 conveyors), including the feeders and opening and closing of the tunnel doors, is operated by one man in a control tower located at the top of the bin wall. The operation may well allow the fastest loading times for any installation on the Great Lakes.

Ohio Turnpike Traffic To Hit 10 Million for Year

With an 11-month total of nearly 8.8 million vehicles already counted, the Ohio Turnpike Commission predicts that over 10 million vehicles will use the Ohio Turnpike in its first year of operation.

After the July adjustment of tolls, increased use by trucks brings the truck total to 1,243,061; automobiles total 7,547,481. Tolls for the 11-month period amount to $10,752,135—total income (tolls plus service stations, restaurants and other sources) comes to $13,026,402.

State Revamps Hiring System To Meet Engineer Shortage

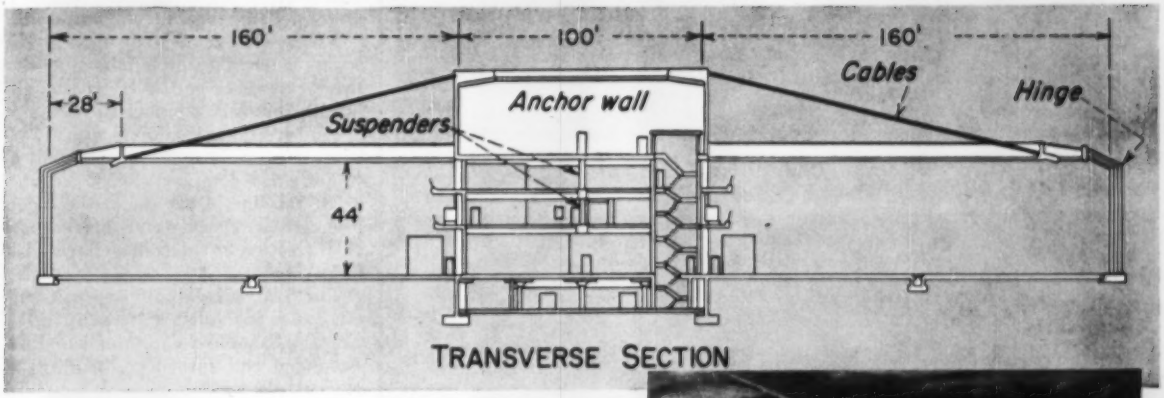
A streamlined one-day hiring procedure is now in use by the State of California to help meet the shortage of junior civil engineers.

Previously, the entire employment process took approximately two months. The present hiring system is done on a continuous processing basis. "Call in the morning and you will be able to complete your application and examination and—if qualified—receive a job offer the same day" states the official announcement.

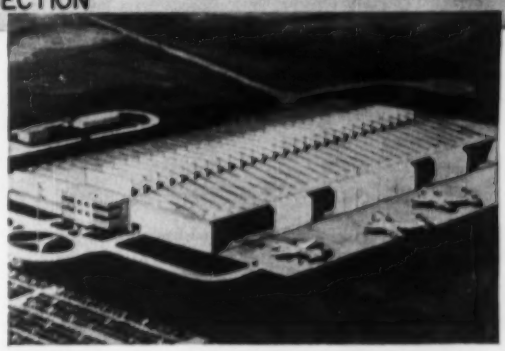
Graduates from an accredited engineering school do not have to take the written examination, but simply pass an interview covering experience, education and personal qualifications. Other applicants will take a written and oral test in addition to the interview.

A NEW FIELD OF APPLICATION FOR HIGH STRENGTH CABLES...

SUSPENDED ROOFS



TRANSVERSE SECTION



TOP: Sectional drawing of hangar showing cables that support the two corrugated concrete roofs, each 818 x 150 ft., plus a 10-ft. door overhang. Four 2½" strands, each with a tensile strength of 752 kips, extend from the ends of 28 "anchor walls." Each wall is prestressed by two 2¼" post-tensioned strands. INSET: General view of TWA hangar at the new Kansas City Mid-Continental International Airport. Engineers and Architects, Burns & McDonnell, Kansas City; Consulting Engineers, Ammann & Whitney, New York City; Contractors, MacDonald-Creighton, St. Louis and Nashville.

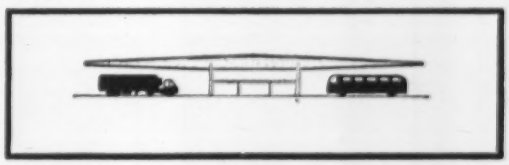
FOR A HUGE HANGAR at the new Kansas City, Mo. airport, column-free space is being obtained by cable suspension of the thin-shell concrete roofs on each side of a central structure. The supporting cables – supplied by Roebling – will be anchored in 30-ft.-deep concrete walls which span between the building columns at 30-ft. intervals, and received at point of suspension on the roofs by steel sleeves buried in the concrete.

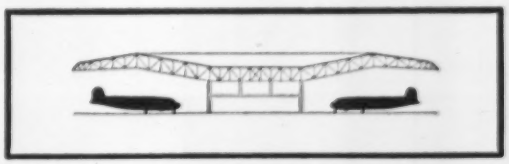
This new application is another major step in the recognition of the economy of axially stressed members in general, and high strength wire tension members in particular. The designers are to be congratulated for pioneering the ideal answer for hangars, bus and truck terminals, gymnasiums, sports arenas, armories and other structures in which a large expanse of unobstructed space is essential.

The Roebling Bridge Department's Specialized Technical Service is always available for consultation, advice and creative design work on new applications of wire members to physical structures. In addition, our Bridge Department products . . . bridge wire, bridge strands, bridge rope and fittings, castings, prefabricated members, etc.–are recognized as the standard the world over.

We should be glad to hear about any structural project, planned or in progress, in which we might be of assistance. Write Bridge Department, John A. Roebling's Sons Corporation, Trenton 2, New Jersey.

BELOW: Two other interesting designs: (1) A prestressed concrete structure. (2) The "gull wing" type, employing a combined truss and cable system.





ROEBLING

Subsidiary of The Colorado Fuel and Iron Corporation CF&I

Pipes Become

A submarinelike tank, with compartments valved for controlled flotation, slipped inside 5-ton lengths of cast-iron pipe simplified an extremely difficult Hudson River pipeline job.

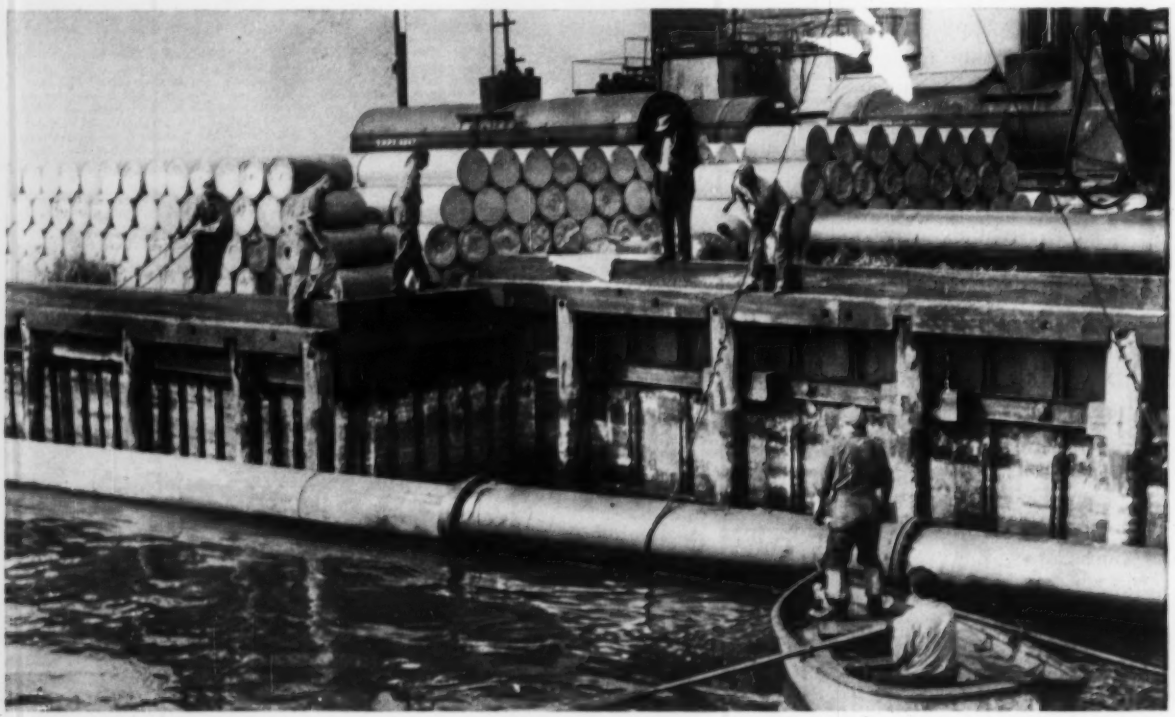
Placing 450 ft of 30-in. pipe in tidal waters is never a simple job. But when the pipe comes in 16 ft lengths that have to be worked under the center of a 600-ft dock standing on 7-pile bents on 8 ft centers, the problem becomes really complex.

To get such a job done, the Young Foundation Corporation of Teaneck, N. J. resorted to the compartmented interior float.

The line being built is a salt-water intake for the Jersey City plant of the Colgate Palmolive Co., and had to be assembled and suspended beneath the plant's sole loading pier. Because the pier is in excellent condition, and its shed houses several pipelines used for unloading tanker-borne chemicals, no work could be done through the deck. Moreover, the spacing of the bents and the piles made it impossible to bring the pipe in from the side of the pier, and since the inshore end had to be kept clear for pier-to-plant traffic, the outshore end offered the only ingress.

THE JOB was to construct a 30-in. salt-water intake beneath the sub caps of a 600-ft pier. Bents are on 8-ft centers with piles 36 to 48 in. apart.

THE SOLUTION is a 45-ft compartmented tank inserted into the pipe section. Buoyancy is controlled by valves, and twist-lock fittings simplified hook-up for water expulsion.



TANK (left) is threaded through two sections of pipe being held by crane. From this point on no machinery is used. Unit is moved manually; raised or lowered by water ballasting.

"Submarines" to Get Under Loading Pier

But even working from this outshore end had its problems. The bottom of the lower transverse caps were only 3 to 6 in. above mean low water, and the supporting piles—36 to 48 in. apart—were so positioned that a straight line could not be drawn from one end of the pier to the other. To complicate the operation further, silt deposits at the inshore end were from 2 to 5 ft above the designed elevation of the invert.

Under normal conditions the pipe could have been assembled on fixed staging platforms or on floats and, with the ends blanked off, floated under the pier in a single section. Initial tests showed however that the sealed pipe floated too high to get under the lower caps. The 3½-in. projection created by the flanges of the mechanical joints further increased the clearance requirements, and there was no room for exterior ballasting.

The solution lay in a compartmented steel tank, 28 in. in diameter, consisting of two end sections, each 20 ft long and a center section 5 ft long, which could slip inside the pipe to be placed. To control buoyancy, the two end sections were fitted with valves—2-in. water intake and a 1-in. air outlet for each tank. The valves were placed at one end of the tank, and welded piping permitted flooding of the front and rear sections. The middle compartment, air-filled, acted as stabilizer.

The tank, as built, proved extremely satisfactory, and according to the contractor, it had only one weakness—the exposed position of its valves. Twice during the course of the work, the air intakes were damaged when they struck lower caps while surfacing. Several protective means were considered, but all methods practical for field installation had a common disadvantage—they would handicap the diver. It was decided therefore to use caution as a substitute for physical protection.

• **Procedure**—A survey showed that 24 piles had to be moved in order to make room for the pipe. Pins holding the piles to the cap were cut where possible or driven below the cap. The piles were then moved sideways by come-alongs and repinned. Two 1¼-in. holes were bored in each cap for the pipe hangers. Meanwhile the pipe fitters made up units of two pipes (32 ft) each.

The empty buoyancy tanks was now floated to the wharf, a crane lowered a two-pipe section into the water and the tank was threaded through it. With the pipe now converted to a floating unit, very little ballasting was necessary to get it under the caps, and manual action could move it under the pier.

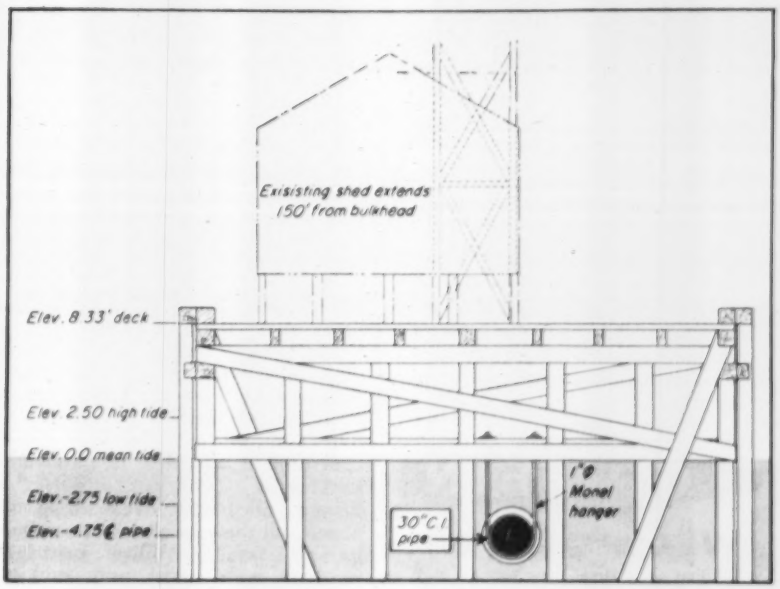
Inshore silt was jetted out by a diver as the first length was brought into position. The hangers were placed around the pipe and bolted through the caps; the diver ballasted the two end tanks and the pipe settled into position on the hangers. On the initial length the air-tight center section of the tank proved too buoyant, and the friction between the top of the tank and the inside of the pipe made it difficult to pull the tank clear. The addition of 500 lb of water to the center section corrected the condition, and on subsequent operations the tank was removed easily. When, on two occasions, the tank was over-ballasted, equilibrium was restored by using air from the diver's compressor to force out some of the water.

While the diver connected each succeeding section, the tank was pulled to the wharf, lifted from the water by crane and drained in preparation for repeating the procedure.

In placing all but the first lengths, the 6.5-ft overhang of the tank at the front of the pipe was used as a guide in placing subsequent sections. As the tank settled into water under ballasting, the diver slid the tank into the previously fixed sections, and in this way provided an automatic aligning device.

With maximum two hours waterwork per day permitted by the tide, the contractor, when he was able to reach the work, was generally able to place and secure one pipe section per tide.

DIVER disconnects air line after expelling some water to effect equilibrium.



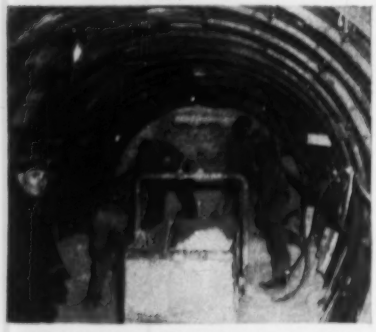
SKETCH of final pipe location shows some problems of placement. Not indicated are 24 misplaced piles and outshore caps at El —1.50.

HOW TO HANDLE
WET JOBS

WELLPOINTS
DRY TUNNEL...
25-FT SUCTION LIFT

North Point Road Tunnel for 96 In. Water Line, at Sparrows Point, Md. Contractor: C. J. Langenfelder & Son.

DOTTED LINES show path of wet tunnel. Pre-drainage problem: Could a wellpoint system, placed at *street level*, remove 12 ft of groundwater with 25-ft suction lift? Before you say "impossible," see below.



DRIED PERFECTLY, by Griffin method, without interrupting heavy traffic to nearby Bethlehem Steel plant.

As photo shows, points did not cross highway but were placed along its sides and thus performed their unusual feat despite a huge gap in-between. What problem can advanced Griffin methods solve for *you?*

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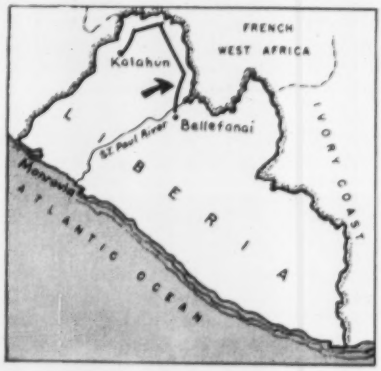


Liberia Highways

Ex-Im loan to finance 150-mile secondary-road

Initial work on Liberia's multi-million dollar highway program is expected to begin soon with construction of a 150-mi secondary-type road in that country's interior. The road, which will run circuituitously from Bellefanai to Kalahun, is to be financed by a $12-million loan from the U. S. Export-Import Bank, and will open for development large jungle areas now inaccessable.

Brown and Blauvelt, New York City, consulting engineers, have been commissioned to supervise construction after doing necessary preliminary engineering and survey work. Because the area is now an uncharted wilderness, much of the design will be done in the field as work progresses.

James Hoban, known best for his work on the Pennsylvania Turnpike, the Garden State Parkway, and the Ohio Turnpike, will be project manager for the engineers.

L. Sterling Hedgpeth, district engineer for the Bureau of Public Roads in Liberia is responsible for directing this and other highway projects covered by the U. S. technical aid program in the country. Hedgpeth was formerly chief of the Specifications and Materials Section, Construction Branch, Bureau of Public Roads, Washington, D. C.

More Land From the Zuider Zee

In their constant struggle against the North Sea for more land, the Dutch scored another big victory last month when another part of the great Zuider Zee bay was blocked off to produce, in time, some 200 sq mi of new farm land.

The new area, expected to be pumped dry in six months, will produce sufficient acreage for 1,000 new farms.

Since 1932, when the Dutch closed the Zuider Zee off from the North Sea, they have been steadily reclaiming the area which comprises about one-eighth of the nation's total.

At an estimated cost of $183 million, the East Flevoland project, as the job now completed is called, was begun in 1950 when dikes were started to cut off about one-sixth of the Zuider Zee.

The general construction technique used in developing the dike which surrounds the area was first to dredge away bottom material to a depth of 6 to 13 ft. Into this trench was poured sand until it was brought up to floor level again. Then, on both sides of the sand-filled strip, boulder clay was placed and the space between was built up with sand. Willow mattresses weighted with stones were sunk to protect the toe of the dike while the upper slopes were covered with rice mats and rubble. All of this was then faced with stone riprap.

After the dike was completed, the top was surfaced with clay and grass and finally a road running along the top was constructed.

Construction of the circular dike, now 56 mi in circumference, was done in segments that were extended gradually toward each other until all gaps were closed, except the one recently closed in ceremonies by Queen Juliana.

Pumping stations, sluices and harbors have since been added.

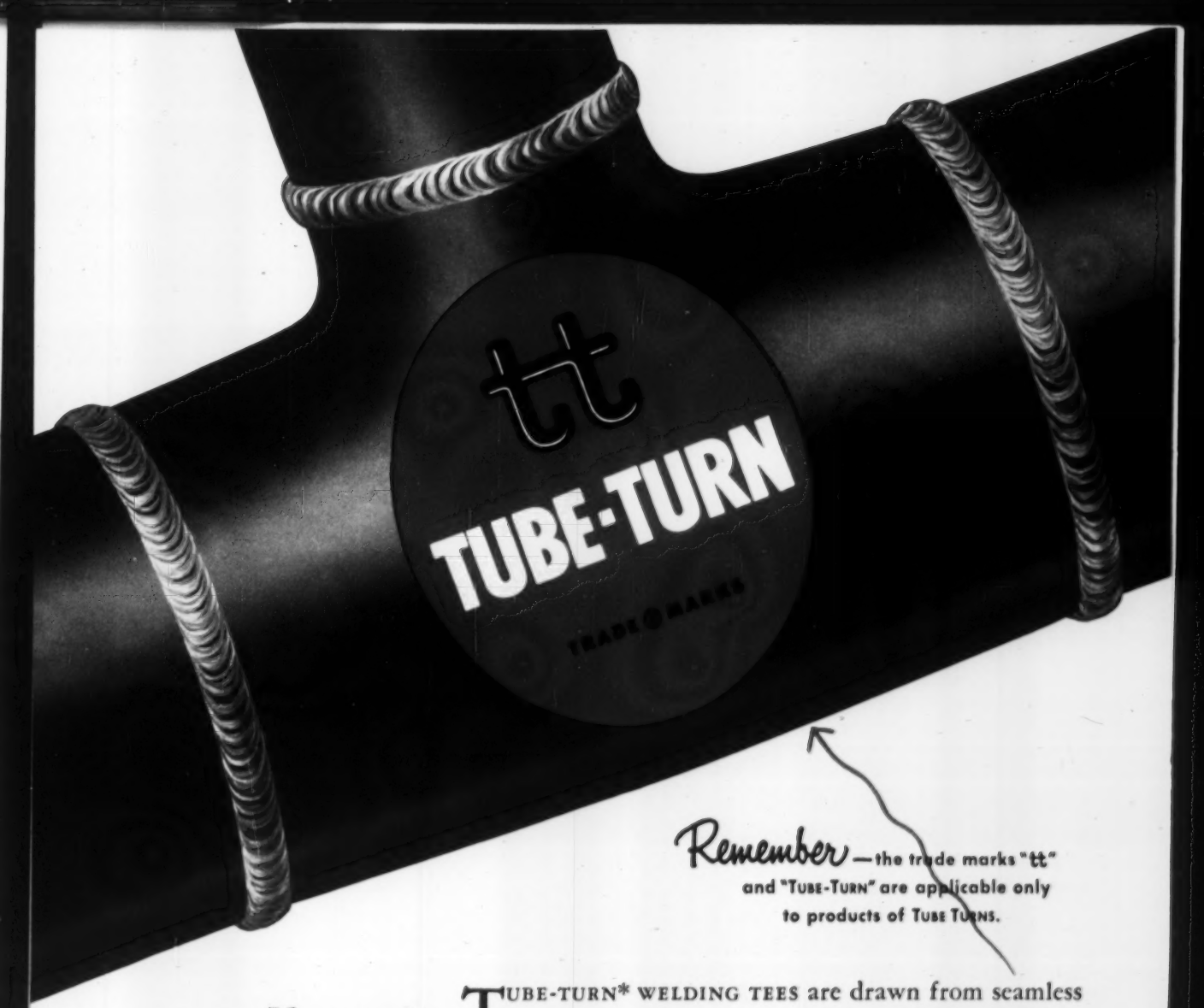
As transportation inside the area will be partly by canal and the landward side of the area is separated from the mainland by a canal, Dutch engineers plan to build sluices, locks, and channels for transportation purposes.

Their plans also include 45 mi of first class roads and 140 mi of secondary roads.

Egypt Gets Rotating Bridges From Czechoslovakian Firms

Two of nine rotating bridges bought by Egypt from Czechoslovakian machine and steel construction firms have been delivered, erected and put in operation according to dispatches from Bratislava, Czech.

The Moeis channel in the Nile



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TUBE-TURN* WELDING TEES are drawn from seamless tubing to a barrel shape. This, and other design features produce high strength—averaging over 25% more than required by applicable standards.

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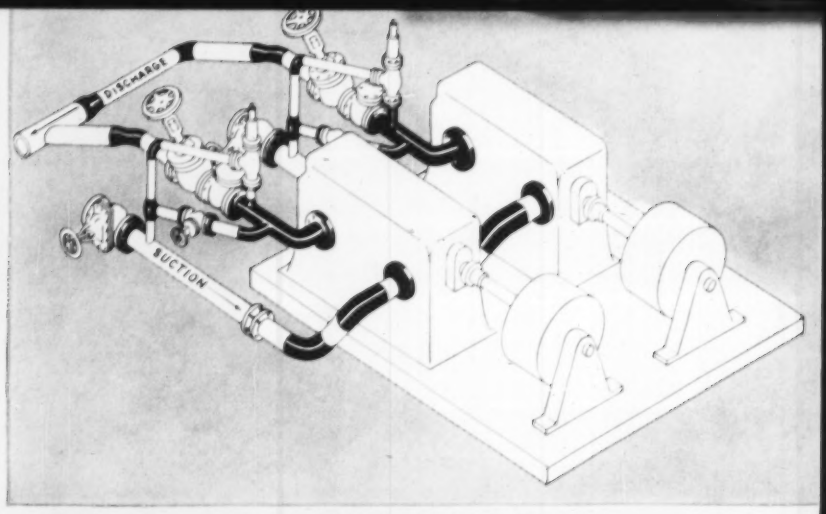
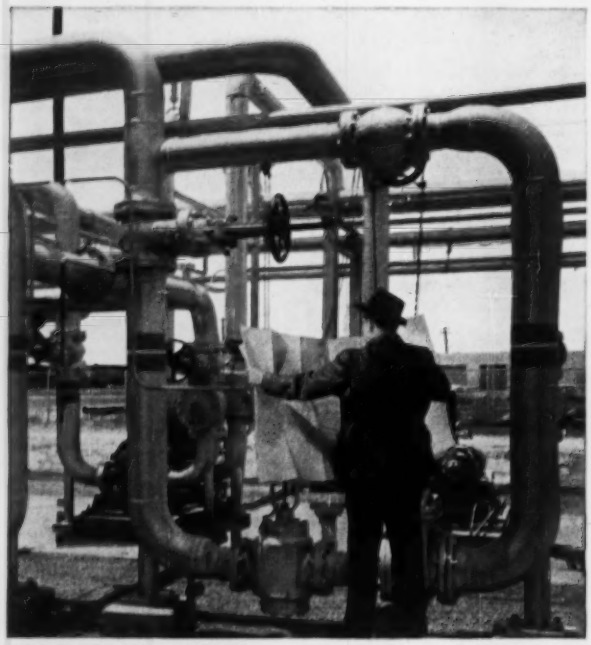


ENGINEERING SERVICE—Tube Turns' Engineering Service can help you on your piping projects. For example: Diagram above shows an application where TUBE-TURN* Welding Fittings and Flanges simplified the design and erection of pump piping. They save time, save space, and make the piping permanently leakproof and reliable. Ask your Tube Turns' Distributor to give you the pump piping recommendations of Engineering Service.



COMPLETE LINE SERVICE—You can *make sure* of getting the right fitting for each job when you specify "TUBE-TURN". This is the world's most complete line of welding fittings and flanges, including more than 4000 items, in all piping materials, schedules, and sizes.

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TUBE TURNS

A DIVISION OF NATIONAL CYLINDER GAS COMPANY

LOUISVILLE 1, KENTUCKY

Delta is now crossed by an identical-half swinging bridge built by the Vitkovice Iron and Steel Works. The bridge which has a 147-ft swing section can be swung 90 deg to the left or right either by an automatic electric system or by mechanical means.

The second bridge delivered has been erected near Kahira. It is 335 ft high and was manufactured by the Stalin Works of Kosice.

The remaining seven bridges will be delivered within the next 1½ years.

A Rather Unusual Plan for Argentina Highway Financing

An unorthodox method of highway financing has been announced by the National Highway Administration of Argentina. The plan involves expropriation of large tracts of land adjacent to the right-of-way, as well as the land needed for the roadbed itself. By later sale—at considerably increased prices—of adjacent lands, the government figures it can build the road for nothing and show a profit besides.

First-stretch of road to be financed under the new plan is a 38-mi two-line highway running from Buenos Aires to La Plata. Total cost of the road, including purchase price of all land to be acquired, is estimated at $28.88 million. From sale of the excess 2,750 acres left after the highway is built, the government expects a return of $28.94 million—a net profit, after paying for the road, of $56,000.

Contracts Let for Canadian Pipeline River Crossings

Contracts have been let by the Trans-Canada Pipe Lines Ltd., for two major crossings of the Assiniboine River in Manitoba. According to company official, Charles S. Coates, work on the parallel 1,000-ft crossings will be started immediately by Marine Pipeline and Dredging Ltd. Two heavy-wall, 34-in. dia pipes will be buried 10 to 15 ft below the river bottom, after being insulated and weighted with concrete.

"In-Service" Engineer Training Under Study by Canadian City

A program designed to keep city engineers from being lured away to private industry's higher salaries is under study by the city of Calgary, Alberta, in Canada.

To provide its engineers with more opportunity, an "in-service" training program may possibly be adopted, according to J. Ivor Strong, commissioner of public works, who added that the

When Concrete joints must be kept filled

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SELF-EXPANDING CORK

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Servicised Self-Expanding Cork Joint provides *maximum joint filling* regardless of concrete movement because it is specially treated to expand to 150% of original thickness. Composed of granulated cork and synthetic resin binder molded under heat and pressure. Widely used in tunnels, outlet works, spillways, stilling basins, sewage treatment works and water filtration works.

When joints in exposed concrete must be inconspicuous...

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Servicised Sponge Rubber Cementone Joint is composed of high quality blown sponge rubber of uniform thickness and density. Gray in color, it blends with concrete to provide a fully resilient, inconspicuous joint filler. Especially suitable for bridges, viaducts, pre-cast concrete wall panels.

SERVICISED STANDARD CORK EXPANSION JOINT

Similar in composition to Self-Expanding Cork, Standard Cork Joint has a very high recovery rate after compression —95%. It is light in color and will not extrude under compression.

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An association of 22 American capital stock fire, marine, casualty and surety insurance companies providing insurance protection in foreign lands

engineers themselves had requested such a program.

Strong said the idea of the program is to allow city engineers an opportunity to broaden their experience without leaving the city's payroll. It will provide training in various fields of engineering work as the men feel that added experience in different departments would give them a better chance of "increased increments".

Calgary has had difficulty in keeping its engineers, and the shortage of engineering help has become so critical that vital planning and designing of some projects has been curtailed.

Brazilian Subway System

Bids are being received by the Municipal Commission for Collective Transport for a 62.5-mi city subway system for Sao Paulo, Brazil. The overall plan, developed by former mayor Francisco Prestes Maia, includes 100 stations. Track will run about 36% open cut, 23% underground, 38% elevated and only 2.3% in deep tunnel.

The first stretch of the system will serve the southern industrial district, connecting downtown Sao Paulo with Santo Amaro. Financing will be local, although there is some possibility of outside aid.

Zambesi River Tunnel Nears Completion

With only the plugs remaining at both ends, the 40x30-ft diversion tunnel nears completion for the giant Kariba hydroelectric project on the Zambesi River in Northern Rhodesia (ENR Sept. 6, p. 71).

The tunnel, some 70 ft below the water surface level, will be used for diverting the Zambesi while work is done on the cofferdams and later the dam itself which will be 400 ft high.

Ultimate completion of the Kariba project, with a capacity of nearly 1.2 million kw, is expected in 1971. The Kariba project will produce the largest man-made lake in the world, approximately 4½ times the size of Lake Mead at Hoover dam.

The first stage of the project, financed partly by American money, will cost $224 million, and the completed project will cost nearly $100 million more.

The photograph shows compressed air pipes to the rock drills, and ventilation channels to the workers on the rock face. The view is downstream.

High-Voltage Submarine Cable Laid to Vancouver Island

A 48-mi 138-kv power line linking Vancouver Island with the British Columbia mainland was placed in operation last month. The installation involved crossing 19 miles of water with 91 miles of submarine cable at a cost of $3.5 million.

A single-core, gas-filled, pre-impregnated paper-insulated cable, utilizing gas at 300 psi, was employed. But instead of providing a slight clearance under the lead sheath to facilitate gas flow, a central gas duct was left in the conductor.

Laying of the submarine cable posed little problem except for landing the shore ends. The usual method of anchoring the cable ship close to shore and bringing the cable in on barrels could not be employed at one point because of extremely shallow water extending a great distance offshore. Instead, about 9,000 ft of cable were coiled on a flatbottom scow and laid from the moving vessel. So successful was this method that it was adopted for all the other landings.

The 91 miles of underwater cable went down in four weeks. Five cables (two spares) spaced at 500 yd were laid in the 16-mi Strait of Georgia just below the mouth of the Fraser River. Four cables lie on the bottom of 3-mi Trincomali Channel between two small islands off Vancouver Island.

British Insulated Callender's Cables Ltd., London, installed the submarine cable for British Columbia Electric Co.

$25-Million Improvements For Toronto Airports

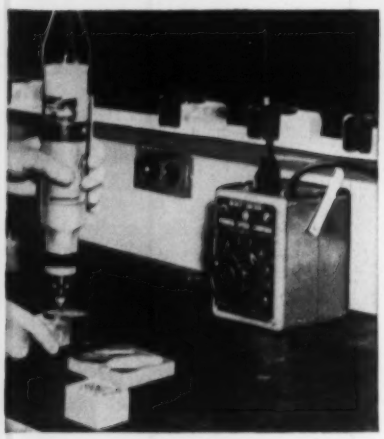
Final agreement has been reached by the Canadian federal government and the City of Toronto on a $25-million plan to improve the Malton and Toronto Island airports.

Under the program, Toronto surrenders Malton to the federal government in exchange for expansion of the Island airport.

Work at Malton airport has already started; the Island project is in the drafting stage.

Concrete Conveyor Rolls Easily on Swivel Wheels

A yard a minute is the depositing capacity claimed for American Conveyor's Con-Vay-It Concrete Special. The unit can be equipped with swivel-wheel frames front and rear for easy lateral movement during casting operations. An elevating device gets the delivery end up where the mix is needed. Standard conveyor lengths are 20, 30 and 40 ft. Power plant is a 9-hp Wisconsin gasoline engine. AMERICAN CONVEYOR CO., 2133-37 S. CHRISTIANA AVE., CHICAGO 23, ILL.



Power-Speed Control Equips Heavy Tool for Light Duty

A device announced by Black & Decker enables relatively heavy power screwdrivers to take on delicate jobs. Using the B&D No. 8 Scrugum, for example—a tool made for driving No. 8 screws—and the new Power-Speed Control, an operator can drive screws as small as No. 0. The driver-control combination can turn small screws safely into delicate materials such as ceramics and glass, according to the manufacturer. Dial settings on the control unit regulate both power and speed of the screwdriver. BLACK & DECKER MFG. CO., TOWSON 4, MD.

Self-Adhering Plastic Aids In Keeping Progress Charts

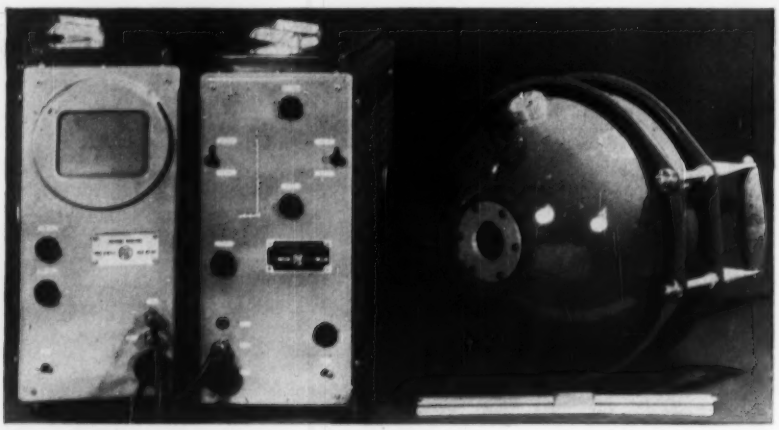
Self-adhering plastic is the essential ingredient of two products designed for office planners and people who keep in chart form such information as progress reports and materials and production schedules.

The plastic does not feel sticky to the touch, but it sticks to any smooth nonporous surface—glass, for example—when pressed into place with a finger.

For the office-layout planner, a kit contains several plastic boards and hundreds of stick-on plastic representations of desks, file cabinets, tables, radiators and other items that occupy floor space. Boards are marked in ¼-in. squares. Available boards include a black one, said to photostat well, and a transparent model, for contact reproduction.

The second product is called Plan-O-Board. The kit contains a plastic board ⅛ in. thick and a supply of plain white stick-ons. The board is ruled horizontally and vertically, 26 spaces each way, plus a wide column at the left side of the board for names or other information.

For marking the stick-ons, the kit contains special materials—typewriter ribbon, pencil, pen and ink. Ready-marked stick-ons are available—numbers, letters, squares of different colors and with a variety of markings. PLANORAMICS, 631 E. FIRST ST., BOSTON 27.



Controlled and adjusted from surface—

One-Man Underwater Television Camera

A British pioneer in development of underwater television cameras has announced a new hand-held unit claimed to be the smallest and cheapest such camera yet developed.

All a diver has to do is aim the camera, which is buoyant in water. He can be given directions through an underwater loudspeaker. Focusing and other camera adjustments are made from a control position which can be located on board ship or at any other convenient surface point.

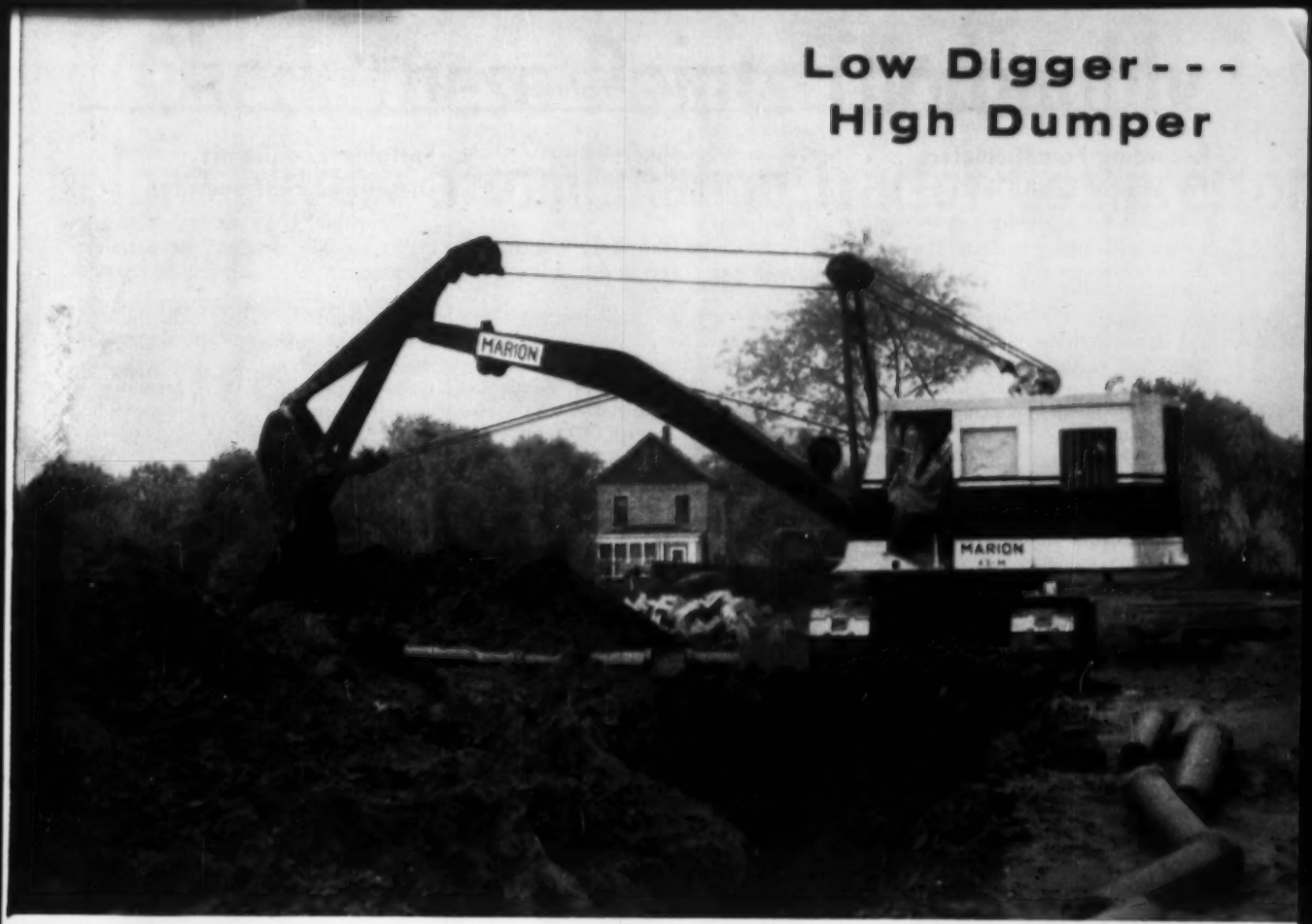
Observers view the underwater scene on a 14-in. TV screen and can make a photographic record of the views.

The camera is intended for operation to depths of 250 ft and can withstand pressures up to 220 psi, corresponding to a 500-ft depth. For normal diver operation the camera, spherical in shape, is fitted with two handles. But the handles can be removed and weights or lamps substituted to permit operation without a diver.

Earlier versions of the firm's underwater cameras have found application in salvage operations, submarine engineering and oceanography.

Equipment now available consists of the camera itself, 12 in. in dia, and a picture monitor and camera control unit, all shown in the accompanying photograph.—PYE LTD., P. O. Box 49, CAMBRIDGE, ENGLAND.

(*New Products continued on page 56*)



1-Yard Hoe Keeps Jersey Job Moving

Sewer lines for a New Jersey housing project moved rapidly and smoothly, with a one-yard Marion hoe on the job.

The low-digging, high-dumping Marion 43-M kept a crew of 10 follow-up workers busy on a fast schedule. The Marion cut a 7-foot trench 4 feet wide and nearly half a mile long.

The long, gooseneck boom of the 43-M helps it swing clean, dribble-free loads into the highest trucks and return quickly to deep cuts in smooth, fast cycles.

Marion air controls make it easy for an operator to look good on the job. This operator calls the 43-M the finest he has seen in 10 years of shovel running. See your Marion Distributor about low-digging, high-dumping help for your next job.

Whatever your job requirement, there is a Marion machine of the right size and type for greatest efficiency

MACHINE	SHOVEL CAP. IN CU. YDS.	HOE CAP. IN CU. YDS.	CRANE RATINGS CRAWLER MOUNT MAX.* STABILITY	CRANE RATINGS CRAWLER MOUNT MAX. USABLE	TRUCK MOUNT MAX. USABLE	ASK FOR BULLETIN NO.
MARION 35-M	¾	¾	18T @ 10'	18T @ 10'	25T @ 10'	431
MARION 43-M	1	1-1¼	27T @ 10'	20T @ 12'	35T @ 15'	430
MARION 362	1½	1½-2	43T @ 12'	30T @ 15'		398-D
MARION 87-M	Special Crane		150T @ 12'	75T @ 15'		—
MARION 93-M	2½	—	80T @ 12'	50T @ 15'		397-F
MARION 101-M	3	—	84T @ 12'	57T @ 15'		417-A
MARION 111-M	4	—	169T @ 12'	105T @ 15'		402-C

*For Comparison Purposes Only

MARION POWER SHOVEL CO.
MARION, OHIO, U. S. A.

Please send me Bulletin 430 on the Marion 43-M.

Name ..... Title .....

Company .....

Address .....

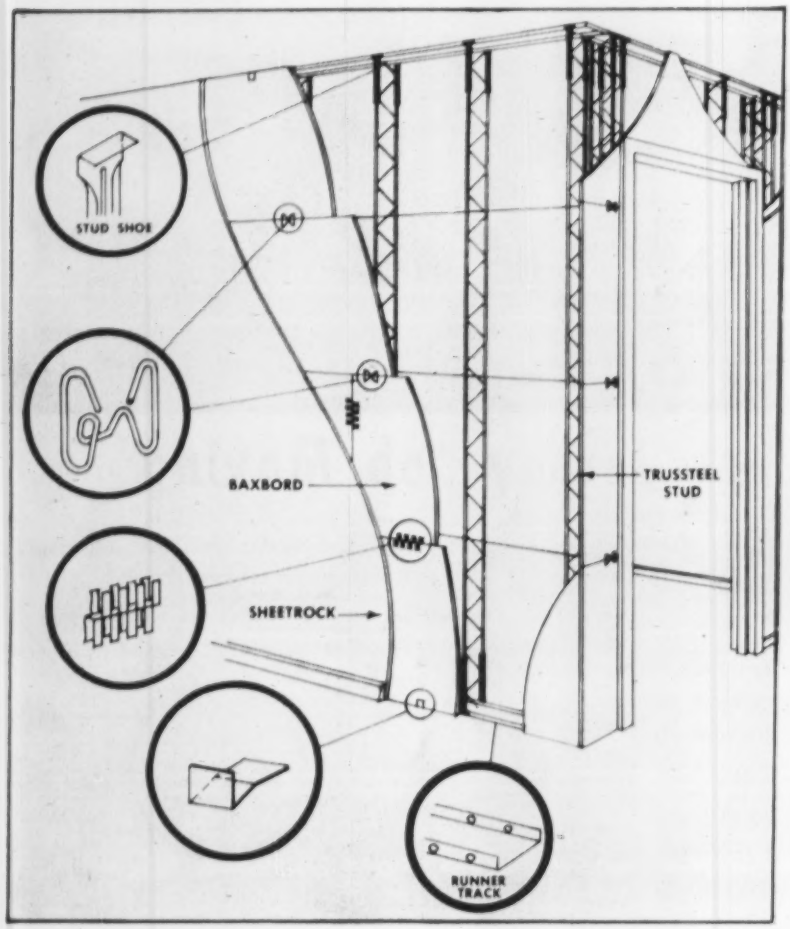
City ..... State .....

Recording Potentiometers For Digital Read-Out

High-speed recording potentiometers for use with analog-to-digital conversion devices have recently been announced by the Bristol Company. Designed to give full-scale traverse in 0.4 seconds, the new electronic recorders can work with most of the standard digital read-out devices presently available, such as tape punch, card punch and digital printer.

Ample torque is available for operating retransmitting slidewires, alarm contacts, and other such auxiliary devices, without affecting the dynamic characteristics.

Accuracy of the basic Dynamaster potentiometer and bridge instruments are unchanged when being used with the converters. Any measurement which can be converted to an electrical value can be read-out in this way, including temperature, pressure, flow, differential pressure, pH, speed, power and smoke density. The Bristol Co., Waterbury, 20, Conn.



Partition Assembly Framed With Steel Studs

Steel studs with a backup sheet and gypsum-board facing on each side comprise the main elements of an assembly introduced by U. S. Gypsum for non-load-bearing and free-standing partitions. Metal runner tracks and minor parts like clips complete the partition. Tradename is Sheet Rock-Trussteel Stud Partition System.

Composed entirely of noncombustible materials, the assembly has a fire-endurance rating of 45 min. According to the manufacturer, sound-transmission loss is 45 db through the partition.

With long dimension horizontal, the ⅜-in., 2x8-ft backup sheets—a USG product called Baxbord—are clipped to the studs. Sheetrock panels, 4x8 ft by ½ in., are then glued with long dimension vertical to the backing sheets. United States Gypsum Co., 300 W. Adams St., Chicago 6, Ill.

Portable 12-Kilowatt Diesel-Electric Generator

A portable, 12-kw diesel-electric generator specially designed for operation where space is at a premium is now available to contractors.

Approximately 30 in. high, the unit is designed for either continuous or standby operation. An inherently regulated 3 phase, 60 cycle generator is normally furnished coupled to an 18-hp, two-cylinder, horizontally opposed diesel engine.

The unit, the Witte 100RDA, is complete with direct connected exciter. The generator can also be furnished with separate voltage regulation and radio-suppression equipment. Witte Engine Works, Oil Well Supply Div., United States Steel, 1614 Oakland Ave., Kansas City, Mo.

No-Stop Power Shift For Payloader Models

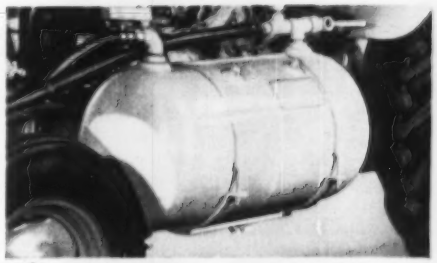
Introduction of two four-wheel-drive pneumatic-tired Payloader tractor shovels has been announced. The new models, a 14-cu-yd (struck) model HH and a 1-cu-yd (struck) model HU are said to incorporate many interesting features, most important of which is the "no-stop" Palyomatic power shift transmission. With this unit it is unnecessary to stop the machines for a range shift, since all shifts in both forward and reverse can be made without even slowing down. Power steering, power brakes, and power shift simplify operations; and a transmission and torque converter designed to use standard SAE-10 HD oil help keep operation costs down. The Frank G. Hough Co., 772 Seventh Ave., Libertyville, Ill.

(*New Products continued on page 61*)

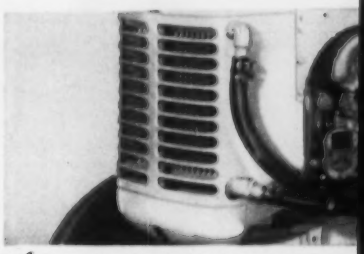
Check These Points Thoroughly
before buying a combination Tractor-Compressor

Absence of these engineering design features can mean less work done and more cost on your next job.

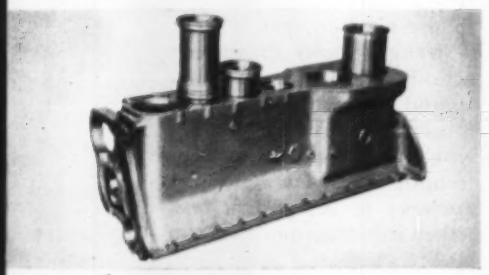
In recent years, combination tractor-compressor units have been increasingly popular. This is due, in large measure, to the fact that machines of this type are much easier to keep at work all day than their counterparts: an ordinary tractor and a standard portable compressor. To insure that you get the maximum benefit from any combination tractor-compressor unit, check these important points before buying.



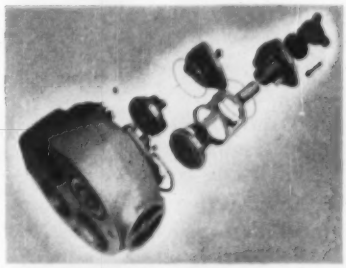
✔ **Location of the compressor air receiver** is important. The air receiver must be exposed to give you cool outside air in every operating condition, and should not hug the hot engine or be located next to the gas tank.



✔ **An air-cooled aftercooler** permits the tractor-compressor to deliver clean, cool, dry air hour after hour. Best cooling results can not be obtained from those units using a water-cooled manifold as an aftercooler.



✔ **Replaceable wet sleeves** in the cylinder construction of your tractor-compressor eliminate costly reboring jobs, and give you more efficient cooling by directing a 360-degree flow of water around each individual cylinder.

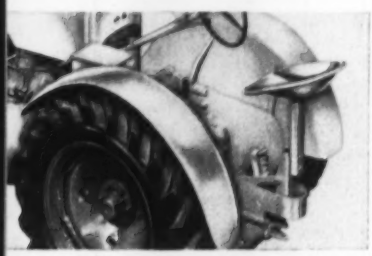


✔ **Interchangeable and replaceable compressor valves** let you get longer service life from your tractor-compressor. This feature also lowers your maintenance costs and assures top performance.

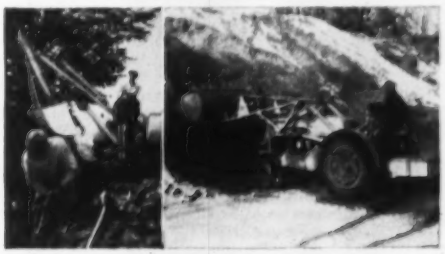
✔ **Plenty of operating space** is important, too. Be sure that your tractor-compressor permits the operator to drive and work efficiently and safely. He should be able to stand up while operating the unit.

✔ **A hood that is easily and quickly removable** helps reduce the time needed for minor repairs on your tractor-compressor. It permits preventive maintenance practices, too. Ask for this feature.

✔ **The fastest possible travelling speed** is a time-saving feature of the tractor-compressor. Be sure that your unit can get you from job to job in the shortest possible time.

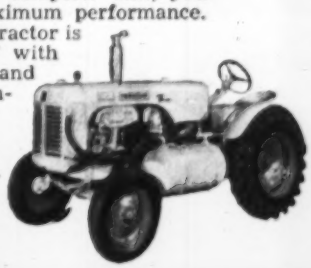


✔ **Wrap-around fenders are a must.** This is a major safety factor, particularly when the tractor is operating on rough ground or on highways and streets.



✔ **Many attachments for use with the unit** give you greater job versatility. Be sure your machine is designed for use with attachments such as the front-end loader, backhoe, and other tools.

✔ **If it's built and designed by one manufacturer** as a complete unit, you can be sure of maximum performance. Make sure that the tractor is designed to "work" with the compressor unit and is not an ordinary industrial tractor. The engine, too, should be a product of the manufacturer offering the unit. Your unit should "belong together."



These features can be found only in the Le Roi Tractair — a combination 42-hp wheel tractor and a 125-cfm air compressor. Be sure you get *all* the savings in time and money that the engineering design of Tractair offers you. Check before you buy.

Le Roi Division of Westinghouse Air Brake Co., Milwaukee 1, Wis. also manufactures portable and stationary air compressors, heavy-duty industrial engines, and air tools. Write us for information on any of these products.

On-the-Job Experience Proves . . .

HIGH STRENGTH BOLTS SAVE TIME IMPROVE CONNECTIONS

The McDowell Company, Inc., a large and growing engineering firm in Cleveland, Ohio, is quick to recognize and use new and improved construction techniques. As a result, they have gained extensive experience with high strength bolting on many important structures.

Most recently, they specified Republic High Strength Bolts for main and jack truss connections in their Riverside Division's shipping building at Martins Ferry, Ohio. Based on this and other jobs, McDowell reports these advantages for high strength bolts:

1. Nuts can be tightened to controlled tension with a power wrench, providing a more positive and reliable clamping force than is ordinarily possible with rivets.

2. Although a bolt costs more than a rivet, in many instances the installed cost is less. Bolts can be installed without waiting for a specialized riveting gang, thus saving time.

3. Where there is danger of fire due to chemicals, gases, etc., erection with high strength bolts eliminates a safety hazard.

4. From a design standpoint, the greater strength of a bolt gives it higher resistance to fatigue, especially under dynamic stress conditions.

In addition to these advantages, use of Republic High Strength Bolts drastically reduces construction noise levels, permits easier inspection and allows complete salvagability of structurals. Your Republic representative will gladly discuss how Republic High Strength Bolts can help you build better structures faster, and at less cost. Or, for further information, mail the coupon.

REPUBLIC CHAIN SLINGS SAVE TIME, improve safety in heavy-duty handling operations. Not subject to kinking or snarling, or dangerous fraying, Republic chain delivers long, trouble-free service. The result is maximum safety requiring less frequent replacement. Mail coupon today for data on Republic's complete chain product line.

YOU SAVE TIME ON TUNNELING when you install Republic Tunnel Liner Plates. Cold formed from steel in varying sizes, they fit together perfectly, providing strength and safety during installation and for the life of the tunnel. Contact your local Republic Office for specific data and engineering assistance . . . or mail the coupon, today.

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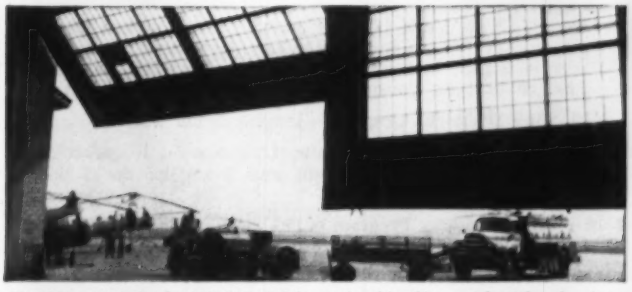
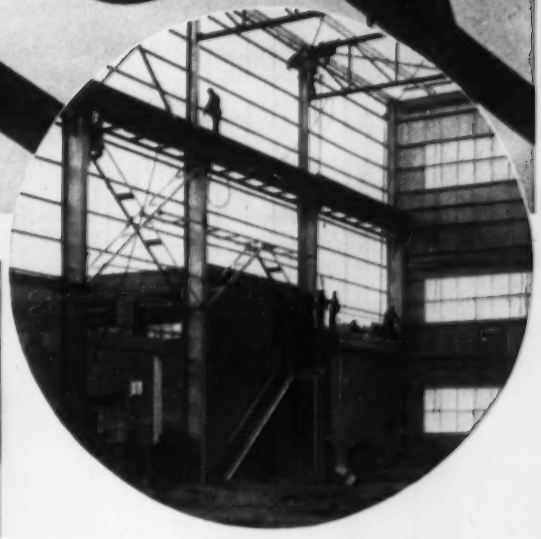
REPUBLIC STEEL

World's Widest Range of Standard Steels



TRUSCON HANGAR DOORS SAVE TIME in moving big ships, cut heat loss in winter. Republic's Truscon Division manufactures a complete line of sturdy, dependable, steel hangar doors in all sizes. Types include Straight Slide, Vertical Lift Canopy, Braced and Unbraced Canopy and Tail Doors. For illustrated literature, send coupon.



REPUBLIC HIGH STRENGTH BOLTS saved time in joining main trusses to uprights. Working seventy feet above the floor, bolting crew made connections with ease. Expensive scaffolding was unnecessary.

STEEL

and Steel Products

REPUBLIC STEEL CORPORATION
Dept. C-1428
3114 East 45th Street
Cleveland 27, Ohio

Please send me complete information on:

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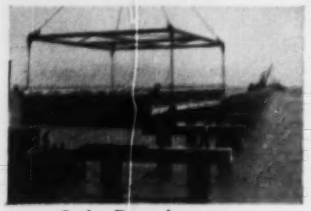
Address_____

City_____ Zone____ State_____



Lake Pontchartrain

Havana Stadium

Sunshine Skyway

Kitimat Dock

Concrete Ships

What Feature* Is Common to Each of these Outstanding Concrete Structures?

PRESTRESSED CONCRETE PROJECTS:

1956 – **Lake Pontchartrain Bridge** – 24 miles of precast, prestressed deck spans – Palmer and Baker, Consulting Engineers

1956 – **Hangar at Hill Air Force Base** – 84 ton precast, prestressed girders spanning 130 feet – Roberts & Schaefer, Consulting Engineers

1956 – **Havana Sports Stadium** – 286′ thin shell dome with prestressed ring girder – Professor J. Vila and The Preload Company, Inc., Consulting Engineers

1955 – **Hampton Roads Project** – 2 miles of prestressed beam spans and prestressed piles – Parsons, Brinkerhoff, Hall & McDonald, Consulting Engineers

1954 – **Sunshine Skyway across Tampa Bay** – 3½ miles of prestressed beam spans – Parsons, Brinkerhoff, Hall & McDonald, Consulting Engineers

1953 – **Bridge at Heilbrun, Germany** – 353 foot span, world's longest prestressed span – Dr. Moersch, Consultant

1952 – **Office Building, Glenn L. Martin Co.** – 3 story precast, prestressed members bolted into place–Engineering Dept. of Glenn L. Martin Co., and The Preload Company, Inc.

1949 – **Walnut Lane Bridge, Philadelphia** – First large prestressed bridge in U.S. with a span of 155 feet – Engineering Dept. City of Philadelphia, The Preload Company, Inc. and Professor G. Magnel, Consultants

FLOATING CONCRETE STRUCTURES

1955 – **Tappan Zee Bridge, New York Thruway** – 6 buoyant boxes to support 80% of the weight of the main piers–Madigan-Hyland, Captain Emil H. Praeger, Consulting Engineers

1954 – **Kitimat Dock, British Columbia** – Cast on side and rotated 90° by shifting ballast – Frederick R. Harris, Consulting Engineers

1952 – **Pier 57, New York City** – 3 buoyant boxes with a total displacement of 73,000 tons floated 38 miles to permanent position at 15th Street, in New York City. Madigan-Hyland, Captain Emil H. Praeger, Consulting Engineers

1946 – **Floating Drydock, Uruguay** – longest in the world

1943-44 – **Floating Drydock Program, U.S. Navy** – 13 large docks with a capacity of 2800 tons, and 2 smaller docks with a capacity of 400 tons

1942-45 – **Concrete Ship Program** – 125 ships and barges built for U.S. Maritime Commission during World War II

*The feature common to each of these projects is the use of Plastiment Concrete Densifier to obtain uniformity, uniform high strength and resistance to water and cracking.

Of course, the great volume of Plastiment is consumed in every day concrete work such as conventional reinforced buildings, water reservoirs, and similar structures.

For a detailed explanation of Plastiment action in concrete, write today for the 8 page bulletin "Plastiment Concrete Densifier."

Sika

PLASTIMENT® CONCRETE Ddensifier

SIKA Chemical Corporation, Passaic, New Jersey

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Adhesive Sets Cold, Speeds Repair of Wood-Block Floors

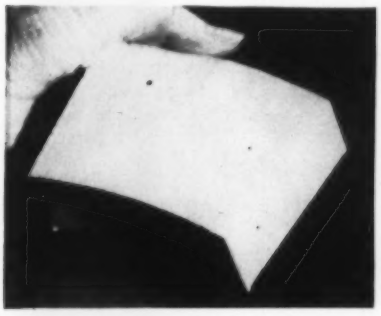
An hour after a wood-block floor is repaired or resealed with Blockset, the surface is ready for traffic, according to the maker of this cold-setting, water-resistant adhesive. Because it requires no heating, the compound is applied without the fire hazard of heating kettles and is said not to emit obnoxious fumes.

In repair work, the floor base is coated with the adhesive, the replacement blocks are dipped in it, and after the blocks have been laid, cracks in the floor are filled with the compound. In resealing, Blockset is simply spread over the entire surface with a squeegee. The Monroe Co., Inc., 10703 Quebec Ave., Cleveland 6, Ohio.

Polyethylene Joins List Expanded-Foam Plastics

Polyethylene is now available as expanded foam. Under the tradename Agilene-F, molded forms are offered for such uses as heat and electrical insulation and soundproofing.

In contrast to ordinary polyethylene, with a specific gravity of 0.92, the foamed plastic has a specific gravity of 0.46 or 0.33. Tensile strength is 500 to 600 psi. American Agile Corp., P. O. Box 168, Bedford, Ohio.



Travels wherever you want it. Schramm Pneumatractor Rotadrill eliminates separate compressors and wagon drills in Nally & Boone Quarry at Greensburg, Ky. Mounted on a Schramm Heavy Pneumatractor, the Rotadrill has almost unbelievable maneuverability—goes almost anywhere. Sets up in minutes, too, and can drill a 4¼" hole or smaller to a depth of 500 feet with 10,000 pounds down pressure. Mast lowers for traveling between jobs.

KENTUCKY QUARRYMEN SET RECORD FOR ECONOMY

Drill 830 feet in 4-day test at drilling cost of 4½c per ton

The figures at the right show what happened at the Nally & Boone Quarry, Greensburg, Ky., in a 4-day test of rotary rock-drilling with compressed air. Working in hard limestone, a Schramm Rotadrill mounted on Heavy Pneumatractor drilled 13 holes with a total footage of 830 feet. Approximate drilling cost per ton was 4½c.

One reason for this record is Rotadrill's speed in making hole; increased penetration rates of 55% to 66% are reported in hard limestone areas. Another reason is the easy maneuverability of the self-propelled Pneumatractor; it goes almost anywhere under its own power. Still another is quick set-up; simply raise the mast, level the rig, attach bit—in a matter of minutes.

Before you buy your next air compressor, get all the facts on piston versus rotary types. Write today for your copy of "Let's design the PERFECT Portable Air Compressor."

Look at the savings Nally & Boone got with their Pneumatractor Rotadrill.

13 holes, total footage 830 ft.	
32 hours labor @ 1.25	$40.00
11½ hours labor @ 1.87 (overtime)	21.50
43½ hours depreciation @ 1.50	65.25
190 gallons of gas .30	57.00
Bit cost	207.50
1 gallon of oil @ .40	1.60
Total	$392.85
Cost per foot total elapsed time	.473
Drilling cost per ton—9 holes on 12′ centers	4-4/10 cents
Drilling cost per ton—4 holes on 10′ centers	4-7/10 cents

Your local Schramm Dealer is listed in the Yellow Pages of your telephone directory.

Schramm, Inc.

MANUFACTURERS OF AIR COMPRESSORS

620 North Garfield Ave. West Chester, Pa.

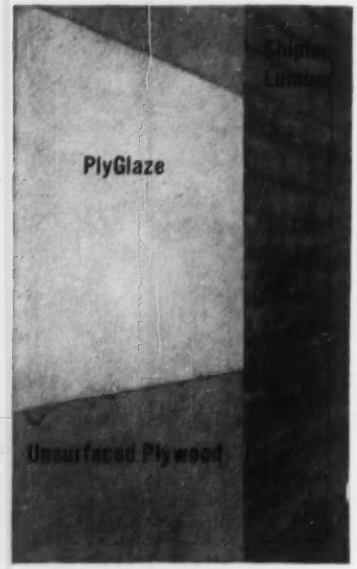


Photo taken right after stripping forms proves that you get the...

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CONCRETE FORM PANELS

READ "finest" both ways: PlyGlaze *itself* has the finest, smoothest surface of any form material; PlyGlaze-formed *concrete* surfaces are the finest—smooth, even-textured, with no trace of grain pattern. Savings on finishing costs alone frequently offset slightly higher cost of this premium material. See Sweet's File or use coupon for more information.

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Hard, glossy-smooth wear resistant fused resin-fiber surfaces.
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Please send free PlyGlaze literature.

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Publications

Plastics in homebuilding—An illustrated 16-page booklet on plastics' use in homebuilding, contains dozens of ideas, with sketches, showing the materials in use. The booklet is divided into sections on foundations, framing, finishing, built-in equipment and mechanical equipment. Among the specific applications covered are moisture barriers, insulation, sheathing, splines, window channels, weather stripping, and electrical and plumbing items. BAKELITE CO., ROOM 1502, DEPT. RM, 300 MADISON AVE., NEW YORK 17, N. Y.

Concrete-form ties—Richmond's 1956 handbook has 46 pages chock-full of information on form-tying and anchoring devices for concrete construction. The Richmond line is well covered with drawings and tables giving strengths, working loads, dimensions, uses, nomenclature and procedures. Included are such data as concrete pressures, form loads and deflections, form fastenings, and properties of planks and timbers. RICHMOND SCREW ANCHOR CO., INC., 816 LIBERTY AVE., BROOKLYN 8, N. Y.

Crawler track—A four-pager issued by Kensington Steel, a subsidiary of Poor & Co., describes tracks built of specially alloyed manganese steel. Design improvements, according to the company, include an anti-shear lug that fits snugly around the tie-bar on the rail link to eliminate end play and elongation of bolt holes and one-piece casting that is said to reduce twisting, weaving and sideways. KENSINGTON STEEL CO., 505 KENSINGTON AVE., CHICAGO.

Lighting—A 20-page illustrated booklet describes Sylvan-Aire, Sylvania's packaged system of light and sound control. The booklet incorporates sections on installation, maintenance, design, specifications, lamp and fixture selection, suspension systems and correlation of lighting construction with other services, such as air conditioning and plumbing. SYLVANIA ELECTRIC PRODUCTS, INC., 48TH ST., WHEELING, W. VA.

Job attachments for tractors—In nine minutes reading time (a 15-page illustrated brochure) methods are outlined for increasing productivity through use of Hyster job attachments on new or used tractors, according to the manufacturers. On-the-job histories were used in preparing the volume, which describes use of the various types of attachments in fill compacting, trenching, shoveling, pile-driving, winching, yarding, bituminous salvage and other construction tasks. Copies are available at Caterpillar-Hyster dealers, or by writing to HYSTER CO., 2902 N. E. CLACKAMAS ST., PORTLAND 8, ORE.

Fire-resistance ratings—"Vermiculite Fire Resistance Ratings for Plaster, Acoustical Plastic, and Concrete" offers 38 drawings of fireproofing details for concrete and steel. Included are roof and floor assemblies, columns, beams, trusses, walls and solid plaster partitions. VERMICULITE INSTITUTE, 208 S. LASALLE ST., CHICAGO 4, ILL.

Fork trucks—Five 1957 electric fork trucks are described and pictured in a 2-color 20-page booklet. Drawings, photos and specifications of the trucks are followed by several pages of details on specific features. Catalog 32-1. LEWIS-SHEPARD PRODUCTS, INC., DEPT. R-29, WATERTOWN, MASS.

Slurry pump—A 6-page bulletin, "The Oliver Diaphragm Slurry Pump", describes and illustrates features, applications, sizes and capacities, special designs, installation instructions and power requirements of the pump. DORR-OLIVER INC., BARRY PL., STAMFORD, CONN.

Off-highway truck—International Harvester Co. has entered the off-highway hauling field with two new 24- and 18-ton trucks, on which a 6-page folder is now available. CONSTRUCTION EQUIPMENT DIV., INTERNATIONAL HARVESTER CO., 180 N. MICHIGAN AVE., CHICAGO.

Prefabricated buildings—Numerous cutaway and detail drawings in color fill a 20-page catalog of Stran-Steel's prefabricated industrial and commercial buildings. Featured are rigid-frame and bowstring-truss buildings and metal curtain walls. STRAN-STEEL CORP., DETROIT 29, MICH.

Aluminum louvers—Canopies, louvers and vent housings of extruded aluminum are described and pictured in an 8-page catalog. Motorized, hand-operated and stationary louvers are included. BRISK METAL PRODUCTS, 103 PARK AVE., NEW YORK 17, N. Y.

Materials handling—An 8-page booklet describes with pictures some of the advantages of portable conveyors and other material-handling equipment. BARBER-GREENE CO., AURORA, ILL.

What makes this hauler a driver's dream?

It's the Allison FourSpeed TORQMATIC DRIVE—a torque converter, transmission and retarder in *one* compact unit.

And this headline-making drive does more than fulfill a driver's dream as he puts this International Harvester 24-ton Model 95 Payhauler through its paces.

It speeds trips and job-cycle times. There's no break in the power flow as the driver flicks a lever to switch speed ranges with terrain changes. There's no clutch-pedal pushing, no gearshift-guesswork.

Allison TORQMATIC DRIVE holds maintenance and repair costs down to the minimum. The TORQMATIC converter absorbs shock loads, prevents harmful engine lugging and stalling.

Another exclusive feature of this TORQMATIC DRIVE greatly extends service-brake life, makes driving safer, too. It is the built-in hydraulic retarder which gives this hefty Payhauler a second braking system that saves regular service brakes for full stops or snubbing on curves.

Want to know more about this great new Allison Model CBT-5640 FourSpeed TORQMATIC DRIVE? Write Allison Division of General Motors, Box 894E, Indianapolis 6, Indiana.

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TORQMATIC DRIVES

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LEVELS ITSELF!

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F/S MODEL 5172

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Now you can get a reliable precision instrument which, actually automatically levels itself, quickly, simply, easily—no complicated time-wasting adjustments . . . astonishingly low price!

- **AUTOMATIC LEVEL F/S 5172 OFFERS**

24X Periscopic telescope containing a "pendulum-principle" device which automatically produces and maintains a horizontal line of sight.

Direct view of the spherical bubble through the telescope eyepiece, allowing constant check on the bubble centering while reading rod.

- **AUTOMATIC LEVEL F/S 5172 GIVES YOU PRECISION ACCURACY**

±0.028 ft./mile if used with regular base; ±0.010 ft./mile if used with special up-down movable base (micrometer Mod. 5180) graduated to 1/1,000 ft. or to 1/10 mm.

- **AUTOMATIC LEVEL F/S 5172 COSTS YOU ONLY**

$350 including adjustable leg tripod

$90 for the optional micrometer Mod. 5180

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Washington's Emil C. Jensen is . . .

The 17th President of FSIWA

Emil C. Jensen, state sanitary engineer of Washington, became 17th president of the Federation of Sewage & Industrial Wastes Associations at its Los Angeles meeting last week. Jensen is the first representative of the Pacific Northwest Sewage & Industrial Wastes Association to serve as president of the federation. And, at the age of 43, Emil Jensen is one of the youngest FSIWA chiefs.

Moved into position for the organization's top spot when FSIWA vice president John W. Cunningham resigned from office this summer for reasons of health, Jensen succeeded Cunningham as result of a special letter ballot. Jensen has expressed deep personal regret that his long-time friend from the neighboring city of Portland was unable to carry through to the presidency.

As state sanitary engineer, Emil Jensen is one of those with definite responsibilities for administration of the new federal pollution control law (ENR Oct. 4, p. 21). His office will assist the state pollution control commission in establishing priorities for use of aid funds by Washington communities. He points out that primary purpose of the law is to intensify the effort to control the mounting pollution problem. Accordingly, he has expressed the hope that every city will make a sincere effort to carry through needed sewage treatment works without depending on financial aid.

Jensen feels FSIWA can materially aid federal activities in improved pollution control. He stresses out that those in pollution control can do more to make it effective than can compulsory laws. He is hopeful that there can be stronger ties between the federation and its local associations. He also would like to see more members in the local associations. This would result in better organizations and make the entire group more effective in pollution control, he says.

Son of Danish immigrants, Emil Jensen grew up on a farm near Bellingham, Wash., at the far northwest tip of the U. S. He graduated in civil engineering from the University of Washington in 1936. Then he put himself through a year of graduate work at Harvard, receiving an M.A. in 1938; he was helped in these studies by a graduate fellowship.

His first work after college was as a sanitary engineer for the Yakima,

(*Continued on page 68*)

Placing the king-size reinforcing bars in the foundation of the Prudential Life Insurance Company's new addition. *Architect:* Welton Becket, F.A.I.A., and Associates; *General Contractor:* Wm. Simpson Construction Co.; *Consulting Engineers:* Murray Erick Associates; Anthony C. Meehleis, reinforcing fabricators and placers. All are Los Angeles firms.

Floating Foundation for California Building Contains King-Size Reinforcing Bars

Building an addition to the Prudential Life Insurance Building in Los Angeles presented a unique problem in foundation construction. The new building rests directly upon an extension of the La Brea tar pits. This soil condition required a special "floating" foundation of reinforced concrete which would spread the weight of the building over a large area, rather than concentrate it in relatively few spots.

Engineers knew that if bars of ordinary size were used, so many would be required that the flow of concrete in the forms would be impeded. The answer was to use a huge No. 18 reinforcing bar measuring 2⅜ in. in diameter, rolled by Bethlehem Pacific Coast Steel Corporation for the job. Use of this bar allowed engineers to reduce by as much as one-third the number of bars needed to supply the required strength.

Bethlehem is well equipped to give excellent service in furnishing reinforcing bars to any part of the country, for any size job.

Bethlehem Bars are made from new-billet steel to ASTM Specifications A-15 and A-305 in the conventional sizes. The No. 18 size is deformed and made to our special standards.

TEN BAR FABRICATING SHOPS AT YOUR SERVICE

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Export Distributor: Bethlehem Steel Export Corporation, New York

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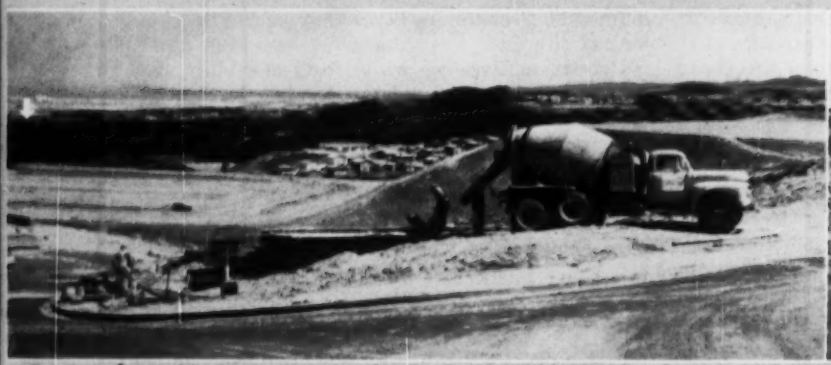
How job site batching with supplier $920,000 contract of 5 stationary plants

On the southern outskirts of San Francisco above San Bruno is a 5000 acre hillside area of new subdivision and shopping center construction. 6 ready-mix suppliers were in position to bid on the contracts: 5 stationary plant operators and Cupertino Concrete Co., the one Noble-Mobile batching plant on wheels operator. Cupertino was able to take the job at a price 8% below the nearest competitor yet make a profit averaging 6%. By driving his Noble-Mobile to the job site and producing there, Cupertino reduced transit truck hauls to a maximum of 2 miles and saved over 50% on hauling costs. Each Cupertino transit truck works an average of 6 hours a day making up to 12 trips of 5 yards per trip, totaling 60 yards of concrete per day per truck. 60 yards supplied from the nearest competitive stationary plant would have required 2 to 3 trucks. Cupertino saves up to 8 transit trucks.

When the job started in August, 1954, Cupertino located the Noble-Mobile in the center of the first project so the maximum haul would be only 1 mile. On completion of that project and the beginning of another project 1.5 miles distant, Cupertino closed shop on a Friday night and by the following Monday morning had dismantled, moved and reassembled the Noble-Mobile in the new location and was delivering concrete. The cost of setting up the Noble-Mobile in the new location was a mere fraction of what it would have been to install a stationary plant. Saved were the weeks and even months wasted in cutting through legal red tape to secure permits and complete construction. A further source of profit is the do-it-yourself residents of the newly completed homes.

Batching plant on wheels driven to the job site saves erection costs, taxes, site availability problems. Purchase is easier to finance than stationary plants. Pays for itself in savings from shorter hauls. Saves outlay for extra transit trucks and cost of depreciation. Many producers maintain one or more Noble-Mobiles in reserve to handle sudden surges of business and to discourage competitors from stepping in.



Pouring site on 16 per cent grade 1.9 miles below Noble-Mobile plant. Arrow points to closest stationary plant 3.4 miles distant. Noble-Mobile was stationed above construction area so all hauls would be downhill. Competitors had to compute costs on slow, ponderous up-hill drags.

Concrete for 10,000 homes in a 10 year building program! $35,000 Noble-Mobile batching plant, located 2 miles above, supplies concrete for foundations, sidewalks, retaining walls, driveways, patios.

NOBLE-MOBILE
Batchmobile
Covered by patents pending

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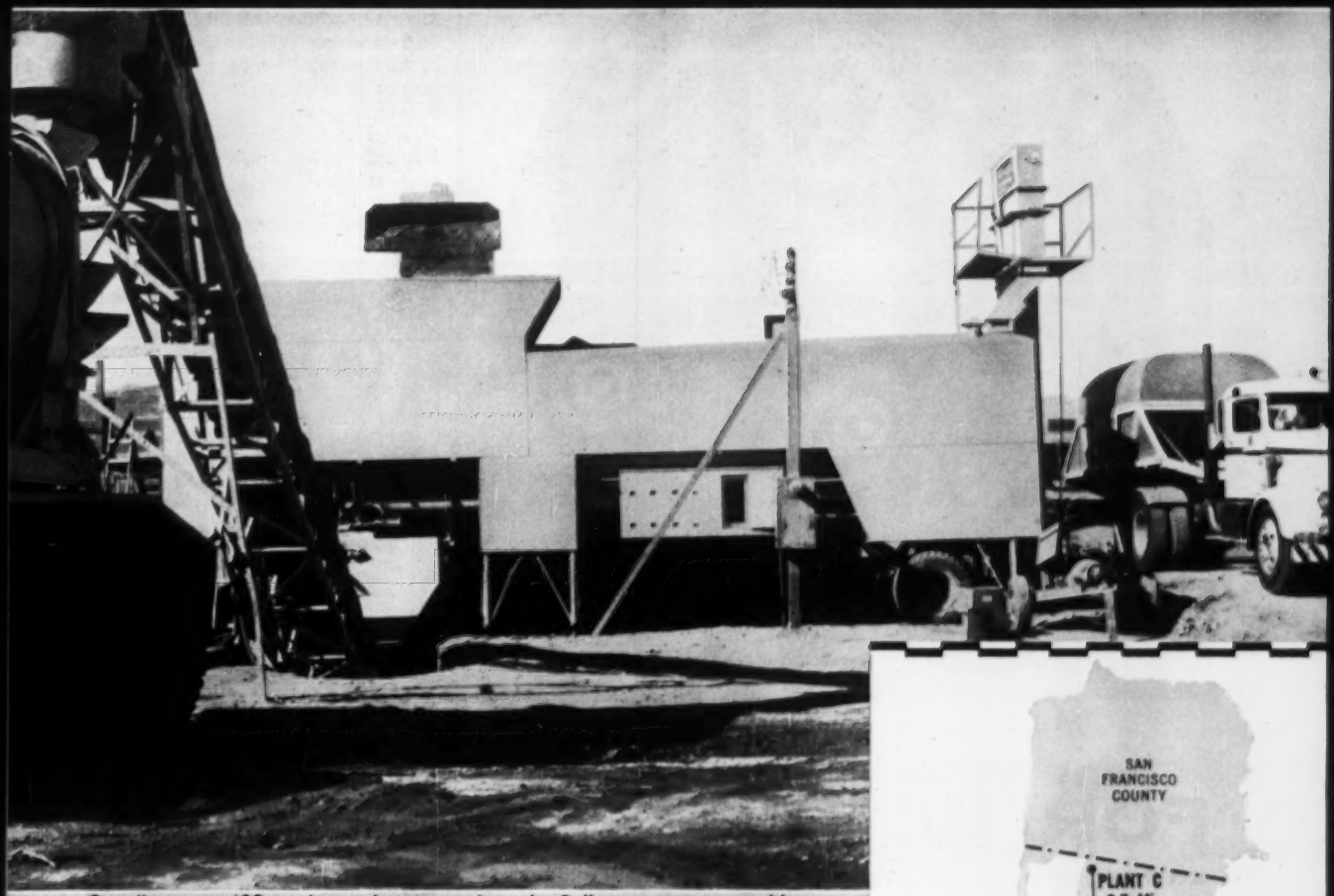
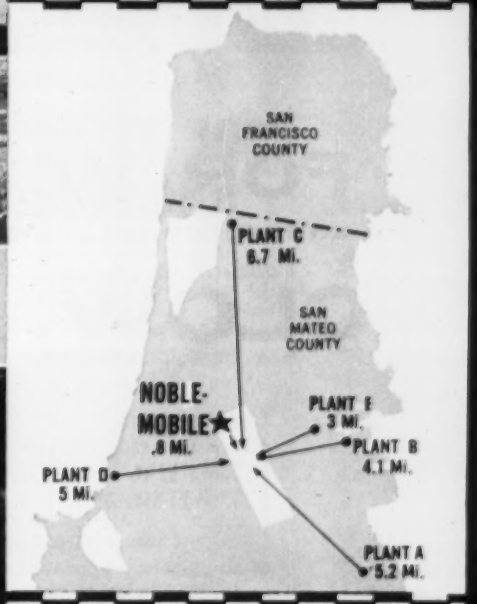
THE NOBLE COMPANY • 1860-7TH ST., OAKLAND 20, CALIF. • TEMPLEBAR 2-5785
Branches: 20950 Center Ridge Road, Cleveland 16, Ohio. EDison 1-3426
518 First Ave. North, Seattle, Wash. MUtual 4878
218 Richmond St., El Segundo (Los Angeles), Calif. EAstgate 2-4518
International Sales Agent: Frazar International Corp., San Francisco

NOBLE-MOBILE got at 6% profit against bids



Supplies up to 400 yards per day to transit trucks. Bulk cement storage with truck hopper unloading screw and elevator. Weighs aggregates and cement separately and simultaneously. Automatic or semi-automatic control. Set up in 1 day. No field wiring, concrete foundations or crane time required on base plant.

Fed by scooploader from aggregate and sand piles. Cost to haul aggregates, sand and cement from producing site to Noble-Mobile no more than to haul to general area where competitors' stationary plants are located. Plant may also be fed by conveyor or crane.



Map of construction areas south of San Francisco showing Noble-Mobile site and competitors' stationary plants — A, B, C, D, E. Note the .8 mile haul from the Noble-Mobile compared with the up to 6.7 mile hauls from the others. "Economics of job-site batching are so sound no outside stationary plant can compete," reports Bob Soldini, Cupertino Concrete Company.

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Clow mechanical joint cast iron pipe is your logical choice for piping water underground. It is easy and economical to install, and can be depended upon for safe, trouble-free, permanent service.

Clow cast iron pipe exceeds the physical requirements of all currently approved specifications. Pipe foundries at Coshocton, Ohio and Birmingham, Alabama. Emergency stocks at Chicago, Dallas, and Oskaloosa, Iowa.

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Iowa Valve Company, Oskaloosa, Iowa

Wash., County Health Department. In 1941 he joined the Washington State Department of Health as a district sanitary engineer and continued in that capacity until 1945 when he became state sanitary engineer. Actually his official title is Chief of the Division of Engineering and Sanitation of the Department of Health of the State of Washington. But in simple terms he's the state sanitary engineer.

Jensen was president of the Pacific Northwest Sewage and Industrial Waste Association in 1952 and has been a national director of the FSIWA since 1953.

He has been president of both the Spokane and Seattle sections of the American Society of Civil Engineers. He is a fellow with the American Public Health Association, a member of American Water Works Association and the Conference of State Sanitary Engineers.

(*Men and Jobs continued on page 71*)

J. A. Volpe Leaves Post

After serving for just under three years in the key spot, John A. Volpe, public works commissioner for Massachusetts, has resigned from the post to resume direction of his contracting business.

Under his leadership, the state embarked on the ambitious Massachusetts Turnpike, the reconstruction of Route 128 circling Boston to the west, and many other projects. A graduate of Wentworth Institute and a Lieutenant Commander in the Navy's Civil Engineer Corps in World War II, Volpe headed his own construction firm until called to the state job by Gov. Christian Herter.

He will be succeeded as acting commissioner by A. Gordon Gray, now chief engineer for the department.

SEABOARD CONSTRUCTION CO. SPEEDS 20 JOBS WITH GENERAL ELECTRIC TWO-WAY RADIO!

Instant communication co-ordinates 200 pieces of equipment with 20 construction projects smoothly... profitably!

When you've got to keep things moving at 20 different locations; get the most out of 200 costly machines; co-ordinate the work of widely-scattered manpower–the right answer is General Electric Two-Way Radio. That's the experience of Seaboard Construction Company, Brunswick, Georgia.

Spread over 150 miles, this fast-moving organization must have expensive equipment at the right spot, at the right minute with minimum outage and standby time. And qualified manpower must be available exactly when and where it is needed to eliminate bottlenecks, speed materials flow, and insure profitable progress on every project.

Solving such problems becomes routine operation with the instant communication and control made available with the G-E Two-Way Radio System. No piece of mobile equipment, no work crew is more than a voice away. Learn how your business can profit from the experience of this progressive construction company and many other forward-looking organizations in scores of industries.

For Sales and Service see "Radio Communication Equipment" in your Yellow Pages. Or, write: General Electric Company, Communications Equipment, Section X 2106-18, Electronics Park, Syracuse, N. Y. In Canada, write: C.G.E. Electronics, 181 Lansdowne Avenue, Toronto.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Hours saved in the trench
dollars saved on the contract...

...because Transite Ring-Tite Pressure Pipe handles easily, positions automatically

• Transite® Pressure Pipe with Ring-Tite® Coupling is so quickly and easily installed —you save hours of costly trench time . . . shave dollars off job costs!

Transite goes in faster, because the Ring-Tite Coupling speeds and simplifies joint assembly. Workmen simply smooth rubber sealing rings into grooves, lubricate the pipe end, and pull pipe and coupling together. Shoulders on the pipe itself position the ends in the joint automatically The result is a joint with positive seal, yet remarkably flexible! And these rubber rings can't blow out.

Corrosion-resistant

You can assure city officials and engineers of peak performance, year after year. Transite Pipe, an asbestos-cement product is strong, durable, highly resistant to corrosion.

For further information about Transite Pressure Pipe and Ring-Tite Coupling, write for Booklet TR-160A. Address Johns-Manville, Box 14, New York 16, N. Y. In Canada, Port Credit, Ontario.

JM PRODUCTS

Johns-Manville TRANSITE PRESSURE PIPE
WITH THE RING-TITE COUPLING

State Highway Commissioner Announces Plans to Retire

A. H. Graham, chairman of the North Carolina State Highway Commission, announced plans to retire when his term expires May 1 of next year.

Graham—appointed to his current term in 1953 by the late Gov. William B. B. Umstead, predecessor to the present governor, Luther H. Hodges—had served a previous term from 1945 to 1949.

Although at odds with Governor Hodges, Graham states that his differences with the governor have nothing to do with his decision and that he had long planned to step down upon expiration of his term.

The terms of other members of the commission also expire on May 1, and indications are that Governor Hodges plans to make wholesale changes at that time.

Special Plans Bureau Organized for Jacksonville

D. S. Herbertson has been appointed to head up a new planning and special designs section in the office of the city engineer of Jacksonville, Fla., according to a city announcement.

Herbertson, who served nine years with the U.S. Corps of Engineers before joining the Jacksonville city administration in 1947, has recently been in charge of the stresses and structures section of the engineering department. Assisting him in the new section will be Frank B. Leach, structural engineer; George B. Martin, J. B. Wynn and G. A. Boche.

Men and Jobs Briefs . . .

• **Corps of Engineers**—**Brig. Gen. Paul D. Berrigan** is given a recess appointment, by President Eisenhower, as a member of the Mississippi River Commission in addition to his other duties as North Central Division Engineer for the Corps. The appointment is subject to Senate confirmation.

• **Careers**—The U. S. Public Health Service appoints **John D. Porterfield**, a career officer of PHS since 1939, assistant to the surgeon general . . . **Lauren B. Hitchcock** resigns as president and managing director of the Air Pollution Foundation located in Los Angeles, to return to private practice as management consultant in industrial research and development.

William F. Thompson and **Chester W. Campbell** have been named, respectively, chairman of the board and president, of the Foundation Co., of New York. . . . **J. L. Bauman** has been elected vice president in charge of construction for Vincent J. Smith, Inc., Binghamton, N. Y., contracting firm.

• **Business**—Intrusion-Prepakt, Inc., a contracting firm specializing in concrete construction and foundation stabilization with headquarters in Cleveland, Ohio, appoints **Harrison H. Roberts** to the position of Manager, Engineering and Foreign Operations.

• **Retirements**—**Harry Potts**, water-rights engineer for the Denver Water Board, after 24 years of service with the board. Potts plans to enter the field of professional engineering consultation in Denver.

Obituaries

John G. Hagan, 53, president of Elmhurst Contracting Co. of New York City, died recently at his temporary home in Ciudad Trujillo, Dominican Republic. A contractor in New York and Central America for more than 28 years, Mr. Hagan was a native of Palmyra, N. Y. Under his leadership, his company had a part in construction of the Triborough Bridge and the New York State Thruway; and took part heavily in construction for the U.S. Armed Forces in British Guiana and other Central American areas. Since the war the company has also been involved in Central American road and bridge projects.

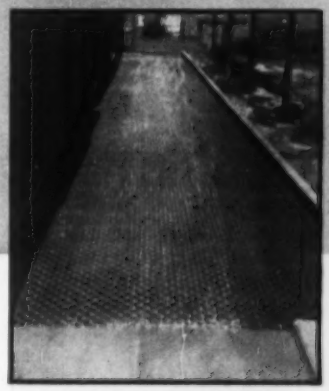
William J. Barden, 86, retired Army colonel, died in Washington, D. C., Oct. 2. From 1940 to 1942, Colonel Barden was District Engineer for the District of Columbia. In 1942 he joined the Esso Shipping Company as a consultant. During his service with the Army Engineers he helped build Wilson Dam at Muscle Shoals, Ala.

Harold S. Knight, 57, a civil engineer, died Sept. 27 at Norristown, Pa. Associated with the Yerkes Engineering Co., Bryn Mawr, Pa., he was a graduate of Pennsylvania State University.

Leland V. Coffin, 51, vice president of South Shore Contracting and Dredging Corp. Patchogue, N. Y. died Oct. 3.

Frank J. Weber, 58, died Sept. 25. He was assistant division engineer for the New York State Department of Public Works in Binghamton.

LOADING PLATFORMS MUST BE TOUGH CLEAN DRY



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Research

Aluminum Alloys Tested For Corrosion Resistance

Some aluminum alloys can resist corrosion for at least 20 years in either a marine or inland atmosphere, according to results of a long-range study conducted by the National Bureau of Standards for the Navy Bureau of Aeronautics.

The test specimens were exposed on weathering racks and removed periodically for microscopic examination and tension tests. Observed behavior was compared with that of control specimens.

Among the observations:

- In tension tests after exposure, alloys of aluminum and copper performed satisfactorily if they had been properly heat treated, but failed by intergranular corrosion and severe exfoliation if improperly heat treated.
- Cadmium alloys and non-copper alloys of aluminum showed excellent corrosion resistance.
- Alloys containing both magnesium and silicon showed evidence of intergranular corrosion after exposure.
- Spot-welded specimens of some alloys showed no decrease in breaking strength after 20 years in a marine atmosphere.
- Corrosion resistance was increased considerably in most cases by a paint consisting of a long-oil ester gum varnish and aluminum powder.

Bumpless Pavement Is Goal Of New Lehigh Experiments

Research now under way at Lehigh University, Bethlehem, Pa., is aimed at eventual construction of a "bump-free" pavement, university officials said last week.

Sponsored by the Pennsylvania Department of Highways, the U. S. Bureau of Public Roads, and the American Iron and Steel Institute, the study is being carried out on reinforced concrete pavement sections at Lehigh's Fritz Engineering Laboratory, with Prof. W. J. Eney as consultant, and Robert L. Schiffman and Ivan J. Taylor as co-directors.

Key to the program is the long-held dream of a continuous, jointless pavement. Experimental sections of such a pavement have been built—in Indiana (1939); New Jersey (1947); California (1949) and Texas (1951).

Within the past year, Pennsylvania has initiated two experimental projects on continuous reinforced concrete pavements—to be located on two miles

of Route 111 between York and Harrisburg, and two miles of Route 22 between Lenhartsville and Hamburg.

In line with these projects, the research at Lehigh will test and evaluate the service experimental installations, with an eye to development of methods and practices of design for economical paving and for the smoothest possible riding qualities.

Tests Identify Gases From Burning Building Materials

Some light on what results when architectural or structural materials in a building burn is being shed by tests conducted by the National Bureau of Standards. For the purpose, NBS scientists developed a simple, rapid method for burning combustible materials under closely controlled conditions.

In the tests, plywood assemblies, painted and unpainted, and a polyvinylchloride coating were fired in quantities sufficient to consume all the oxygen in the combustion chamber. These materials produced the largest concentration of combustion gases and caused the greatest decrease in oxygen concentration. This low oxygen concentration, NBS researchers report, is typical not only of the closed system used in the tests but also of large, open, ventilated systems, such as in burning rooms and buildings.

Tests also showed that for every material examined, the greatest variety of gases was produced at the highest initial firing temperature (550C). (Method for the Controlled Burning of Combustible Materials and Analyses of the Combustion Gases, by Alan Schriesheim, JOURNAL OF RESEARCH, NBS 57,245 (1956) RP2715.)

Gypsum Association Okays Gluing of Tile to Plaster

The Gypsum Association now approves the adhesive application of ceramic, plastic and metal tile to gypsum plaster. Up to now, tile-to-plaster gluing has been limited mostly to portland-cement plaster.

New specifications developed by the Gypsum Association for the work are designed to supplement the Standard Specifications for Lathing and Plastering, of the American Standards Association.

Recommended preparation, according to the new specifications, includes applying a water-resistant primer coat over the plaster. The adhesive is then spread in the usual manner.

ARKWRIGHT ODDITIES

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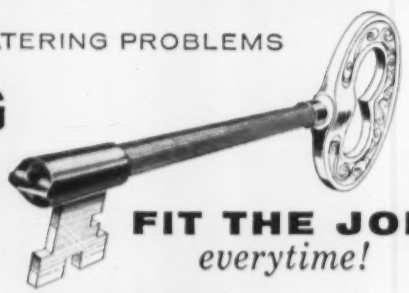

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Books

Redeveloping the Cities

THE METROPOLITAN TRANSIT PROBLEM—by Wilfred Owen. 301 pp. The Brookings Institution, 722 Jackson Place, N. W., Washington 6, D. C. $4.50.

The expanded national highway program passed by Congress has a great gap, according to the author—one of the nation's foremost transportation economists. The gap is that the program won't solve the problem of city traffic jams. In fact, says Owen, the situation is probably going to get worse and worse, unless we start rebuilding our cities and suburban areas in a way that will give the super-highways a chance to function.

This means, says the author, that in the next ten years not only highways but industrial, commercial and residential facilities must be rebuilt on a large scale, or the cities will strangle in their own traffic. It'll either be the biggest construction boom in history—or the worst traffic snarl. Unless we start planning intelligently, we'll wind up with both, says the author.

According to the study, there is no qustion what will happen if we continue crowding more people into the downtown areas by day and dispersing them to "suburban dormitories" each night. As the number of automobiles increases, we shall face a "paralyzing transportation crisis." By 1975, based on population projections, there will be 146 to 158 million people living in city areas. The latter figure is more than the entire population of the United States in 1952. It will mean 23 million more people going to work at rush hours than in 1955. And there is every evidence that more of them will be going by automobile.

With rising incomes and continuing desire for suburban living, car ownership is trending upward from one car to 4.8 persons in 1948 to one car for every 3.3 persons in 1955, and a conservative forecast of one car to 2.5 persons in 1975. This would mean 88 million cars and over 100 million vehicles, including trucks, with most of them traveling into and out of cities.

There isn't enough land available to provide expressways for this many cars converging on a city at rush hours. And if there were, it would cost too much to acquire and develop. The Cross-Bronx Expressway, for example, cost $22 million per mile. The Boston Central Artery is costing about $42 million per mile. At this rate, even a massive federal-aid program would be used up in short order. And the

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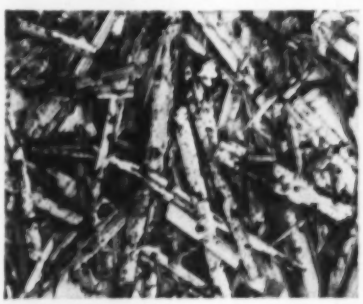

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remaining construction problems would be far beyond the financial capability of the cities.

Still, some method of handling the auto traffic must be developed. According to the Brookings study, there is little chance that a significant proportion of city traffic will return to the subways and other mass transit systems.

The transportation crisis is developing despite ambitious construction programs in some of our major cities. In general, these programs continue to be slowed by shortages of funds, frustrated by lack of coordination between different programs in the same metropolitan area, and overwhelmed by the continuing increase in vehicle population. The problem is further complicated by the commercial building boom, which is creating new centers of congestion before the old ones are relieved.

In short, our cities are now spending several hundreds of millions per year in an effort that leaves them further and further behind in their race with traffic congestion. To really do the job, it is now clear, would involve billions of dollars.

Even with huge financial outlays and the most modern expressway facilities, there will still be traffic congestion as long as we have rush-hour peaks in travel. As pointed out before, there is no way for construction to keep up with the growth in auto population, unless the use of cars is spread more evenly over the day—and also dispersed around the metropolitan area, instead of converging on a few points.

Even more important is the need to redevelop our cities according to a geographical plan that will allow traffic to circulate. This means dispersal of commercial and industrial districts, creating more space in the central areas—not only for traffic but for pleasant living.

In fact, this study suggests that the reasons for a central business district have vanished, with improvements in building design.

All this may seem visionary. But the fact is that we are rebuilding our cities anyway—and rebuilding them rapidly—but in painless fashion.

Thus, better traffic control for the cities means not only huge expenditures but willingness, on the part of businessmen and public authorities, to submit their individual projects to the test of an over-all community plan. This sort of control over new construction has never yet been accepted. But the cost of congestion is rising so high that both higher taxes and more community planning may come to be taken as bargains.

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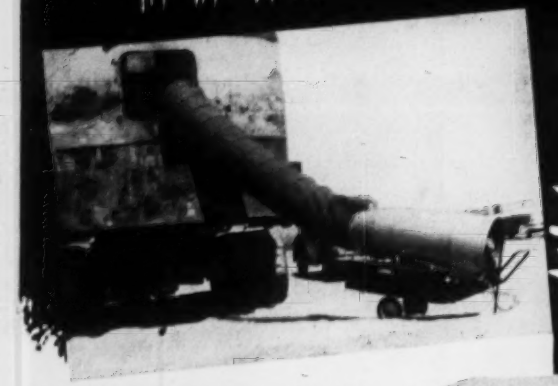

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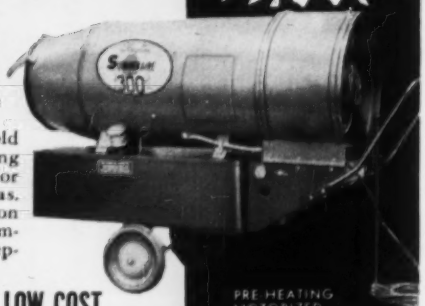

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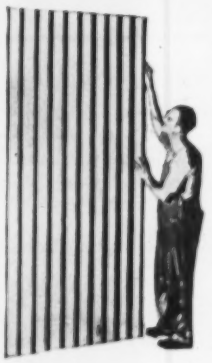

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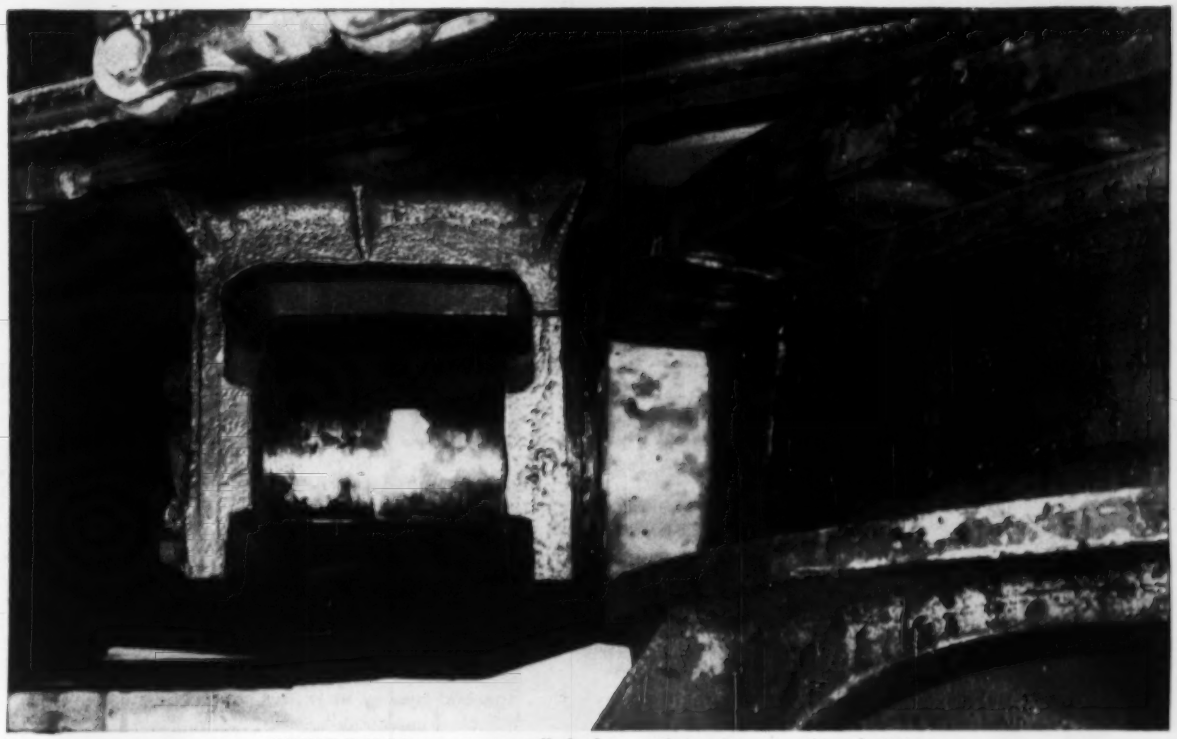

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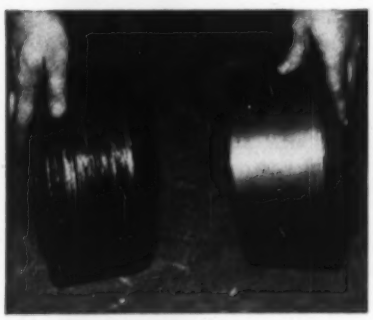
How one of the country's large contracting firms MAINTAINS SHOVEL PARTS

The shovel parts illustrated here are typical of those regularly rebuilt and hard-faced by George M. Brewster and Son, Inc., famous for the big jobs handled, such as the New Jersey Turnpike and approaches to the George Washington Bridge. Standard maintenance practice includes complete restoration of worn house rolls, buckets, bucket teeth, pads and tumblers.



After rebuilding, the Stoody 104 deposit is machined to original size. This is one of the few parts requiring machine work. Others go into service "as-welded."

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Procedures followed here and by other major earth-moving contractors are described in detail in the Stoody Hard-Facing Guidebook and other Stoody literature; consult your Stoody dealer (see the "Yellow Pages" of your phone book) or write direct for full information.

WORN SHOVEL PADS. Conventional treatment includes rebuilding worn areas with Stoody Manganese and manually hard-facing with Stoody 1027.

OTHER SHOVEL HARD-FACING APPLICATIONS

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THE SHORTAGE OF SCIENTISTS AND ENGINEERS:

What Can Be Done About It?

There is no easy or quick way to overcome the shortage of scientists and engineers that has become a threat to our national security and economic progress. The solution can come only through diligent efforts extending over several years to bring the supply of technically trained people into balance with our needs. Meanwhile, the pressure of the shortage can be relieved if industry, government and education make better use of the limited number of scientists and engineers now available.

Earlier editorials in this series have discussed the dimensions of the shortage of technical manpower, its meaning for our national security and our economic well-being and the causes of the shortage. This final editorial will survey some of the measures that can be taken to overcome the shortage. Most of the proposals presented here have been suggested elsewhere. But in combination they appear to offer the best hope of an answer to this serious national problem.

Soviet Methods Not For U. S.

It is clear that no crash program, inspired by panic and designed indiscriminately to drive hordes of high school students into science and engineering, is suitable for the United States. Even if we adopted Soviet methods of channeling a large portion of our brightest young people into technical fields, it would be at least four years before results appeared in the volume of college graduates. And such an approach would do no credit to the American way of life.

Any crash program, whether it involved totalitarian methods or simply overselling the advantages of technical careers, would be objectionable for other reasons as well. It would jeopardize the quality of scientific and engineering training. It would put many young people in fields where they have little aptitude and deny them to other fields for which they are better equipped. And, if carried too far, it might even result in the overcrowding that was feared prematurely a few years ago.

The most important problems for the long run, as the preceding editorial in this series indicated, are in the area of education. Any real solution must reduce the loss of talented high school graduates who do not continue their education for financial reasons or because of lack of interest. Also, it must improve the quality of high school preparation in science and mathematics and, above all, relieve the critical shortage of teachers.

Basic Needs in Education

Substantial increases in salaries of teachers in most of the nation's school systems are essential if high school students are to receive adequate preparation for courses in science and engineering. Pay scales that have lagged behind rising living costs and salaries available in industry have placed great strain on even the most devoted teachers. There has been a sharp drop in the number of new graduates trained to teach science and mathematics, and of this smaller number many have decided not to follow careers in teaching.

Raising teachers' salaries to more realistic levels must be primarily the job of local school districts, aided by state governments. If, in face of rapid increases in school enrollments, local and state resources prove insufficient, then federal aid will have to be considered. Higher teachers' salaries, however financed, inevitably mean higher taxes. But without appreciable improvement soon, the quality of our entire educational system is in danger.

At the college level also, financial aid is needed to provide scholarships for promising students and to increase faculty salaries. (An earlier series of editorials dealt more fully with these problems, and business aid to higher educational institutions has been mounting at a gratifying rate.)

But not all the educational problems related to the shortage of scientists and engineers can be solved with money. Science and mathematics have steadily been de-emphasized as more youngsters have gone to high school for terminal education rather

How business is helping to relieve the shortage of technical manpower

Summary of a Survey by McGraw-Hill Correspondents

Sponsoring summer study programs for high school teachers

Arranging cooperative work-and-study programs for students

Sponsoring college fellowships and scholarships in science and engineering

Paying tuition of employees taking science and engineering courses

Keeping college faculties abreast of new developments in industry

Hiring high school science teachers for summer and part-time work

Giving old, but usable, laboratory equipment to schools

Cooperating in high school science exhibits

Sponsoring regional science fairs

Sending speakers and training aids to schools

Opening plants for student tours

Analyzing jobs to relieve engineers and scientists of routine work

The McGraw-Hill Department of Economics will be glad to hear of any other ways business is helping relieve the shortage.

than for college preparation. This de-emphasis must be reversed.

Techniques of instruction, furthermore, can stand improvement at all levels of education. Professor E. P. Northrup of the University of Chicago observes: "In the past fifty years . . . there has been a revolutionary change in the character of mathematics, yet not a trace of this change is to be found in the curricula of all but a handful of secondary schools throughout the country." Colleges and universities may have to examine old fetishes about light teaching loads and small classes in order to make more efficient use of their faculties.

What Industry Can Do

Industry has the immediate problem of better utilization of available technical manpower and the long-range responsibility of helping increase our resources of trained people. Frantic recruiting practices and reckless bidding up of starting salaries—financed largely by government money for defense orders — are not the answer. There is need for earnest consideration of incentives for experienced scientists and engineers, who too often must look to sales or executive positions for adequate financial recognition.

Industry in many instances could make more efficient use of engineers and scientists by shifting work to technicians, clerical personnel and even machines. One company found that 15% of the time of an engineering design group was spent on routine jobs and that this valuable time could be saved by adding a technician and a clerical worker to the group.

Other potential sources of technical manpower could be tapped more extensively to relieve the shortage. Very few women have entered what has been traditionally a man's world. Negroes are only slowly gaining educational and employment opportunities in technical fields. And many experienced older men can still give useful service.

A Good Beginning

Much is being accomplished already in efforts to attract more young people into scientific and engineering careers. A summary of some of the things business is doing is presented above. Other notable contributions are being made by such organizations as the professional engineering and scientific societies (especially through their manpower commissions), the National Science Foundation, the National Research Council, the National Education Association, the National Merit Scholarship Foundation and the Thomas Alva Edison Foundation.

Results are beginning to appear in rising enrollments in engineering schools and technical institutes. Between 1951 and last year, according to McGraw-Hill's annual survey of technical institutes, enrollments in these schools rose from 46,000 to a record 67,000. Engineering enrollments rose in the same period from 166,000 to 243,000. A rising tide of graduates is already being made available to American industry.

This is a good beginning. But only with wider appreciation of the serious implications of the shortage of scientists and engineers and intensified efforts on the part of business, government and education to relieve the shortage can we hope to overcome this threat to our national security and economic well-being.

This is one of a series of editorials prepared by the McGraw-Hill Department of Economics to help increase public knowledge and understanding of important nationwide developments of particular concern to the business and professional community served by our industrial and technical publications.

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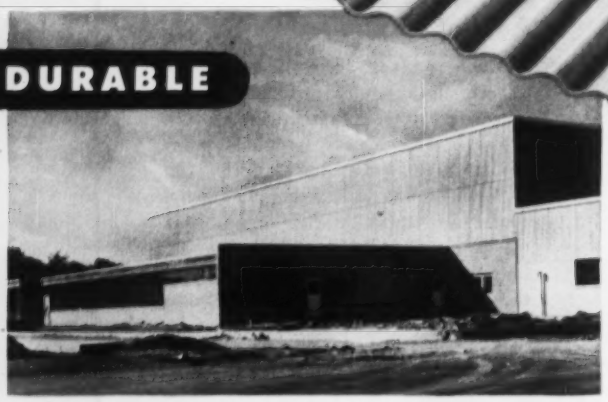

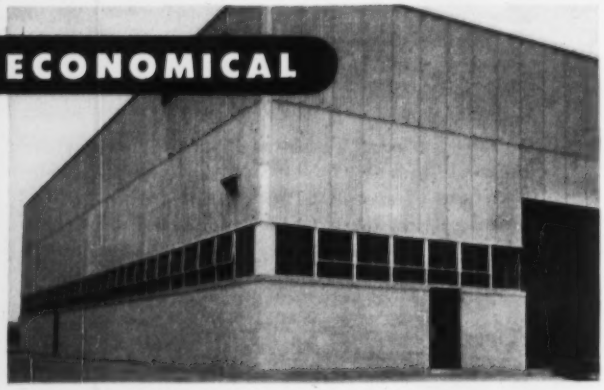

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On the new Rock Of Ages Corp. plant in Barre, Vermont (upper left), these fireproof, noncorrosive sheets were selected to withstand severe climate changes, assure lasting durability in all weather. For the Shell Oil Co. Maintenance Shop #2 in Wood River, Illinois (center), Ruberoid Corrugated sheets made skeleton frame construction possible, required less costly footings. In addition to rugged, long life, Ruberoid Corrugated Asbestos can provide unusual decorative effects as in the Woodlawn Park Shopping Center, St. Petersburg, Florida (bottom).

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Surety Is Held Liable For Employment Taxes

A federal court has ruled that under certain circumstances employment taxes, including those withheld from employees, may be recovered from the surety.

The decision was rendered in a suit by the United States against the sureties on a performance and payment bond executed by a contractor as principal, to recover federal unemployment taxes, withholding taxes and social security taxes which accrued during the process of construction work.

The United States District Court for the Middle District of North Carolina, entered a judgment holding the sureties liable for federal unemployment, and the employer's share of social security taxes, but not liable for the employees' share of social security taxes and withholding taxes. Both government and sureties appealed.

The Court of Appeals held that where a construction contract obligated the contractor to pay all taxes legally collectible because of work undertaken by the contractor, and the performance and payment bond was conditioned on the contractor's performing all agreements of the construction contract, such provisions were broad enough to make the contractor and sureties liable not only for unemployment taxes payable by the employer and for the employer's portion of social security taxes, but also for withholding taxes and the employees' portion of social security taxes withheld.[1]

[1] United States v. Phoenix Indemnity Co., 221 F. 2d 573, U. S. Court of Appeals, Fourth District, April 9, 1956.

School Contract Was Killed Because of Defect in Award

A contractor who undertook construction of a public school in North Reading, Mass., recently found himself out on a limb. After work was started, the contract was canceled because the local school committee had exceeded its authority in awarding the contract. The defect was that the contract did not cover all the work included in the specifications on which the competitive bids had been submitted.

The facts were these:

The School Housing Committee of North Reading invited the submission of bids for construction of a school in accordance with certain plans and specifications. The awarding of the contract was to comply with local laws. The controlling statute provided that bids from general contractors **should be for the "complete work" as specified** should include the names of subcontractors and the amounts of their bids, and that the general contractor would be selected on the basis of such bids. It also provided: "Bid forms shall be completely filled in. Bids which are incomplete, conditional or obscure, or which contain additions not called for, shall be rejected."

The bids of the general contractors were to be submitted not later than 8 P. M. on April 22, 1955, at which time all bids were to be opened. Bids of subcontractors, including those for work on acoustical tile ceilings, were to be submitted two days earlier. The bid form for general contractors called for bids in two items, item 1 to be the work of the general contractor, and item 2 to consist of the subbids.

When the bids were opened, Grande & Son, Inc. was the low bidder on item 1, and L. & L. Construction of Medford, Inc. was low on item 2 and on the total bid. In item 2 under the subbid for acoustical tile ceilings, Grande listed Acoustal Contractors, Inc., as the bidder in the amount of $26,656, and L. & R listed Frederick A. Connor as the bidder at $18,000. An examination of the bids of these two subcontractors disclosed that the Connor subbid was based, not upon acoustical tile ceilings as called for by the specifications, but upon acoustical plastic mechanically applied. L. & R knew or should have known of the contents of the Connor subbid.

The bid of Accoustical Contractors, Inc., was the lowest of four proper subbids submitted for the tile ceilings and its responsibility and eligibility was not questioned. Likewise the responsibility and eligibility of Grande as a general contractor was not questioned.

On May 20, 1955, the contract was awarded by the school authority to L. & R.

After the award of the contract to L. & R and after it had started to perform the contract, Grande instituted a proceeding to have the court review the action of the school committee in awarding the contract to L. & R. The proceeding was dismissed by the Superior Court. Grande than appealed to the Supreme Judicial Court, and the appellate court reversed the lower court, holding that the contract as awarded did not cover all the work called for by the specifications and the invitation to bidders

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in that, among other things, the contract eliminated acoustical tile ceilings. Because of the statute covering the work in question, the court considered that the omission of that part of the work from the contract made the contract illegal.[1]

The school housing committee contended that the statute gave it the right to reject any or all bids, if it be to the public interest to do so. As to this contention, the appellate court stated: "The provision for rejecting bids is not intended as a device to be adopted as part of the act of awarding a contract so as to justify making a contract different from that submitted to competitive bidding. If, after bids are opened, the awarding authority could, either with or without negotiation with a selected general contractor, omit portions of the proposed work for reductions in price, the legislative intent to protect the public, all too easily could be evaded. That the awarding authority, as contended here, had as one of their purposes a reduction in cost is of no consequence. Gifford v. Commissioner of Public Health, 328 Mass. 608, 617, 105 N.E. 2d 476; East Side Const. Co., Inc., v. Town of Adams, 329 Mass. 347, 352-353, 108 N.E. 2d 659. Even the best of motives cannot excuse contravention of the statute." The statute gave the school authority to enter into a contract only for the complete work.

The school authority also raised the point that the statute provided that the award of the contract must be made within thirty days of the opening of bids. As to this claim, the court said: "This does not have the result that an illegal award of a contract becomes immune from attack in that length of time. It is the function of a writ of certiorari upon a proper and adequate return to correct substantive errors of law by a judicial or quasi judicial tribunal which are not otherwise reviewable by a court. Gifford v. Commissioner of Public Health, 328 Mass. 608, 619, 105 N.E. 2d 476."

The appellate court held that the award of the contract to the L. & R Construction Company was in violation of the local statute and directed that judgment be entered cancelling the contract.[1]

(1) Grande and Son, Inc. v. School Housing Committee of North Reading, 135 N.E. 2d 6, Supreme Judicial Court of Mass., June 1, 1956.

(These summaries of court decisions are prepared by I. Vernon Werbin, New York attorney and civil engineer.)

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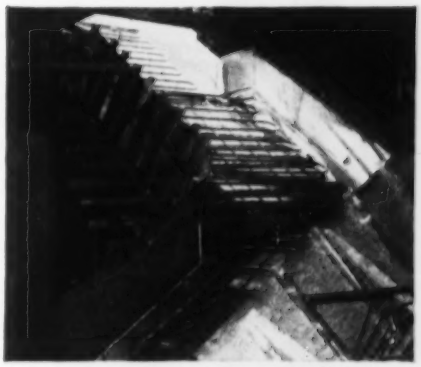

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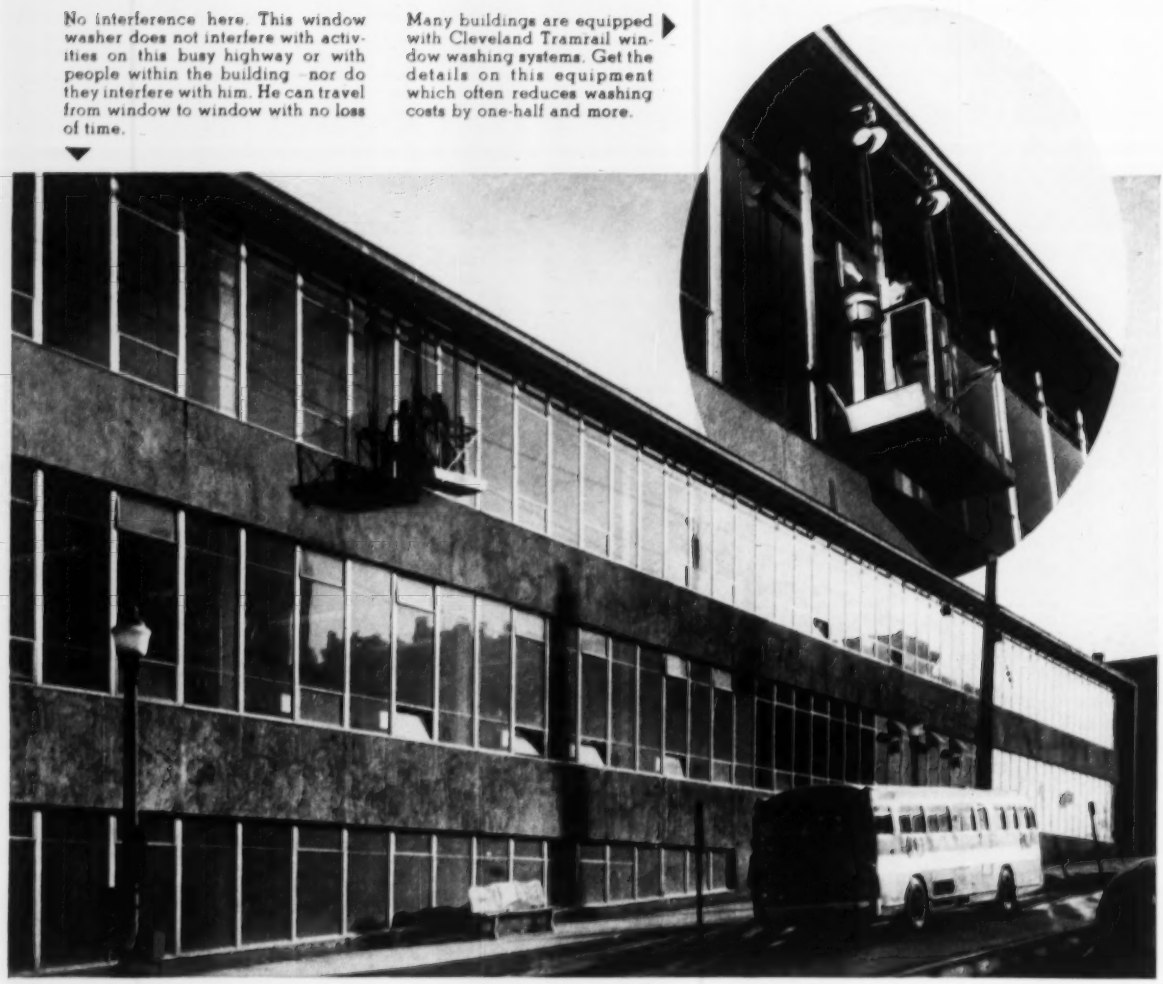

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Pumping and Treatment for Kentucky Sewer System

Eight sanitary sewage pump stations and major treatment plant improvements add $468,135 to the $733,840 sewer contract (ENR Oct. 11, p. 108) for the Hopkinsville, Ky., Sewerage Commission. Howard K. Bell, Lexington, Ky., is consulting engineer.

The eight small and medium-size wet pit type pump stations range in cost from $7,400 to $15,500. Rock and earth excavation, joints, concrete and crushed rock on which unit prices were bid bring the contract up to $84,360. Thomason & Reece, Clarksville, Tenn., was 6.6% below the engineer's estimate and 5.6% below the second low bid.

For $383,775, 2.89% above the engineer's estimate but 8.2% below the second low bid, Clark Construction Co., Owensboro, Ky., will remodel and enlarge the sewage treatment plant to serve a population of 21,000. The improvement lump sum bid takes 94.5% of the contract cost. Timber roof deck and composition roofing on the digester float cover takes 0.5%. Timber roofing was 36% below the price for an alternate for a prefabricated insulating roof.

Minimum wages are $1.75 to $3.175. The bidders include:

Sewage Pump Stations

1C Thomason & Reece, Clarksville, Tenn	$84,360
2 Clark Construction Co., Owensboro, Ky	89,365
6 Bush Bldg Co., Nashville, Tenn	110,495
EE Howard K. Bell, Lexington, Ky	90,320

Bids: 7-25-56 Items	Unit	Quantity	Unit Prices 1C	2
Division "A" Lump Sum Items Complete, Exclusive of Rock Excavation				
North Kenwood Drive	ls	job	$7,800	$8,334
State Hosp on Russell Rd	ls	job	8,600	9,491
Cardinal Dr at Country Club	ls	job	10,900	10,635
Cox Mill Rd at West Sedly Dr	ls	job	13,300	13,733
Old Clarksville Rd	ls	job	15,500	13,856
Michael Ave	ls	job	9,200	9,988
Madisonville Rd	ls	job	7,400	8,693
Christian County Quarry Rd	ls	job	9,100	9,611
Subtotals			$81,500	$84,341
Division "B" Unit Price Items Not Included in Div "A"				
Excavation, rock, extra	cy	140	10.00	25.00
earth extra	cy	50	2.00	1.50
Joint, tabular rubber, extra,	lf	100	0.50	3.22
premould bit, extra	lf	100	0.50	0.27
Concrete, cl A, extra	cy	5	70.00	75.00
cl B	cy	5	60.00	50.00
cl D	cy	5	50.00	45.00
cl E	cy	5	58.00	45.00
Crushed rock, extra	t	10	2.50	2.50
Subtotals			$2,880	$5,024

Sewage Treatment Works Improvements

1C Clark Construction Co., Owensboro, Ky	$383,775
2 Markwell & Hartz, Memphis, Tenn	418,168
5 Ambrosius Ind. Inc. Louisville, Ky	492,485
EE Howard K. Bell, Lexington, Ky.	373,000

Bids: 7-25-56 Items	Unit	Quantity	Unit Prices 1C	2
Sewage treatmt wks improv	ls	job	$362,755	$401,733
Roof deck, timb, composition roofing on digester float cover	ls	job	1,920*	1,000
Alternate: Prefabr insul roof deck & roofing on d gester	ls	job	3,000	2,500

Bids: 7-25-56 Items	Unit	Quantity	Unit Prices 1C	2
Excav solid rock, extra	cy	800	20.00	14.00
in earth, extra	cy	100	1.50	8.00
Concrete, cl A, extra	cy	15	75.00	75.00
cl B	cy	5	50.00	50.00
cl D	cy	10	50.00	50.00
cl E	cy	10	50.00	40.00
Drill holes into rock	ft	150	1.50	5.00
Anchor dowels, reinf stl	ft	200	0.25	1.00
Holes in exist conc, cut	ea	10	25.00	15.00
Crushed rock, extra	t	20	2.50	3.00

* Contract is based on this alternate
T me to complete: 365 calendar days
L quidated damages: $70 per day

Excavation Raises Cost of Washington, D. C., Underpass

A reinforced concrete underpass on Kenilworth Avenue Freeway and Eastern Avenue in Washington, D. C., will cost $778,559. Excavation, 58,685 cu yd, accounts for 29.2% of the total. Class CC concrete averages $46.75 per cu yd, class X concrete costs $95.50. Together they take 31.7% of the contract total. The rest goes to reinforcing steel, stone facing, drainage, lighting and a temporary roadway.

The single span bridge over the underpass is 84.5 ft long and carries one 40-ft roadway and two roadways of 20 ft. The underpass is flanked by two 300-ft ramps on both sides.

Humphreys and Harding, New York, will handle the job for the Department of Highways in Washington. Their low bid is 11.7% below the second low bid and 21.3% below the high sixth bid.

Wage rates are $2.10 for laborers, $2.24 for pipe layers, $2.775 to $3.425 for equipment operators, $3.15 to $3.275 for cement masons, $3.25 to $3.65 for iron workers and $3.525 for stone masons.

1C Humphreys & Harding, Inc., New York, N. Y.	$778,559
2 Wright Contracting Co., Inc.	881,484
6 Capital Engineering Co., Inc., Washington, D. C.	989,526

Bids: 6-22-56 Items	Unit	Quantity	Unit Prices 1C	2
Excav, struct	cy	16,760	$7.75	$5.90
Conc, cl BB, in footings	cy	1,686	20.00	60.00
in walls	cy	1,753	48.00	55.00
in superstruct	cy	365	80.00	75.00
in approach slabs	cy	253	30.00	40.00
Steel, reinf	lb	400M	0.11	0.13
struct, bearing	lb	24,650	0.83	0.50
Alum rail	lf	1,880	10.80	15.75
Stone mary facing	sf	33,807	2.85	3.70
Stone coping	cf	2,948	15.00	16.00
Permanent bench mark	ea	1	700.00	500.00
Bkfl, porous	cy	1,384	3.00	8.40
Dampproofing	sy	4,209	0.20	1.00
Pipe drains, 8"	lf	3,380	1.50	2.75
Drain cleanouts	ea	27	100.00	86.75
Excav, ordinary	cy	39,700	2.40	1.65
Conc, cl X, in superstruct	cy	930	95.50	130.00
Membrane waterproof	sy	593	1.35	3.20
Wire, stl, high tensile	lb	85,450	0.35	0.20
RCP, 12"	lf	670	2.45	3.60
18"	lf	554	4.00	6.15
24"	lf	430	6.00	8.05
Excav, sewer	cy	2,225	1.00	12.00
Manholes	ea	7	350.00	388.80
Curb inlets	ea	8	200.00	301.92
Inlets, type H	ea	5	200.00	360.00
type K	ea	1	200.00	360.00
Lighting system	ls	job	9,000	20,202
Water main, 16", salvage	lf	804	2.00	3.97
Roadway, temporary	ls	job	3,600	1,400
Manhole, sta 10+50	ls	job	1,450	495.00
Track, remove	lf	670	12.00	2.00

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Baltimore *	92 00	96 00	96 00	98 00	98 00	102 00	114 00	.....	.....
	108 00g	*105 00g*	*125 00g*	*125 00g*	*125 00g*	*125 00g*	*125 00g*	*$144.00*	*$144.00*
Birmingham †	88 00	88 00	81 00	88 00	91 00	96 00	111 00	.....	.....
	107 00	*107 00*	*108 50*	*110 00*	*110 00*	*111 50*	*110 00*	*107 00*	*107 00*
Boston *	100 00/	100 00/	104 00/	104 00/	104 00/	104 00/	.....	.....	.....
	96 00m	*95 00m*	*114 00*	*114 00*	*114 00*	*121 00*	*124 00*	*134 00*	*139/143*
Chicago **	98 00	99 00	93 00	107 00	115 00	116 00	111 00	.....	.....
	106 00	*106 00*	*119 00*	*117 00*	*117 00*	*118 00*	*126 00*	*126 00*	*126 00*
Cincinnati *	101 25	102 50	80 00	98 25	103 00	111 50	119 50	.....	.....
	108 00	*108 00*	*107 75*	*118 25*	*114 75*	*116 00*	*138 00*	*138 00*	*138 00*
Cleveland **	88 00	91 00	101 00	97 00	97 00	98 00	.....	.....	.....
			115 00	*110 00*	*110 00*	*110 00*	*128 00*	*128 00*	*128 00*
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Detroit ‡	118 00	118 00	114 00	115 00	118 00	122 00	.....	.....	.....
	195 00	*195 00*	*180 00*	*180 00*	*180 00*	*186 00*	*186 00*	*196 00*	*196 00*
Kansas City *	125 00	125 00	120 00	125 00	135 00	135 00	.....	.....	.....
	125 00	*125 00*	*125 00*	*125 00*	*130 00*	*155 00*	*166 00*	*185 00*	*$10 00*
Los Angeles i	*97 00*	*97 00*	*97 00*	*97 00*	*97 00*	*97 00*	*191 00*	*181 00*	*181 00*
Minneapolis #	*140 00*	*140 00*	*145 00*	*145 00*	*145 00*	*145 00*	*185 00*	*185 00*	*185 00*
Montreal ab	96 00	106 00	96 00	96 00	115 00	134 00	.....	.....	.....
	180 00	*180 00*	*180 00*	*180 00*	*180 00*	*180 00*	*170 00*	*170 00*	*170 00*
New Orleans †	92 00	92 00	97 00	97 00	96 00	100 00	124 50	.....	.....
†	*108 50*	*108 50*	*108 00*	*118 50*	*118 50*	*118 50*	*181 00*	*181 00*	*181 00*
New York §	115 00	117 00	122 00	127 00	127 00	127 00	170 00	.....	.....
	.....	.....	*188 50*	*194 00*	*195 00*	*195 00*	*176/180*	*176/180*	*176/180*
Philadelphia ‡			Range from $117.00 to $137.00				117/137	117/137	.....
			Range from $181.00 to $188.00				*181/188*	*186/188*	*185 00*
Pittsburgh 2	130 00	140 00	130 00	155 00	140 00	145 00	.....	.....	.....
	180 00	*140 00*	*130 00*	*155 00*	*140 00*	*145 00*	.....	*200 00*	*200 00*
St. Louis #	115 00	117 00	125 00d	127 00d	127 00e	133 00e	.....	.....	.....
	.....	.....	*135 00*	*135 00e*	*135 00e*	*141 00e*	*191 00e*	*191 00*	*191 00*
San Francisco A	*85 00*	*85 00*	*85 00*	*85 00*	*85 00*	*85 00*	*150 00*	*150 00*	*140 00*
Seattle †	*82 00*	*75 00*	*76 00*	*78 00*	*78 00*	*80 00*	*95 00*	*95 00*	*98 00*
Toronto a	100 00	103 00	98 00	98 00	100 00	100 00	117 00	.....	.....
	114 00	*117 00*	*128 00*	*130 00*	*130 00*	*140 00*	*150 00*	*148 00*	*150 00*

	LONG LEAF Y. P. Merchantable grade up to 20 ft.		PLYWOOD Rail freight increment (See note for base price)	
	2x12 Rgh	12x12 Rgh	⅜"	¾"
Atlanta †‡			$22 32	$27 24
Baltimore *	$170 00	$188 00	25 92	31 60
Birmingham †	115 00	180 00	21 78	26 58
Boston *	.....	.....	25 92	31 60
Chicago **	139 00	139 00	22 45	27 37
Cincinnati *	141 75	141 75	25 00	30 48
Cleveland **	.....	.....	25 37	30 93
Dallas k‡	130 00	140 00	18 72	22 80
Denver *	.....	.....	13 92	16 98
Detroit ‡	130 00	.....	25 00	30 48
Kansas City *	.....	.....	18 58	20 18
Los Angeles i	.....	.....	18 61ab	20 25ab
Minneapolis #	.....	.....	19 89	24 25
Montreal ab	123 00	123 00	.....	.....
New Orleans †	186 00	184 00	18 72	22 80
†	.....	.....	.....	.....
New York §	255/275	255/275	25 92	31 60
Philadelphia ‡	214/224	214/224	25 92	31 60
Pittsburgh 2	156 00	.....	25 92	31 60
St. Louis #	.....	.....	18 72	22 80
San Francisco A	.....	.....	12 22	14 91a
Seattle †	.....	.....	.....	.....
Toronto a	100 00	.....	.....	.....
	.....	.....	.....	.....

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard. # Retail, LCL, deliv. 2. Deliv. truck lots. 3. sad., truckload lots, S/S Mfrbm

LUMBER: Bold Face Type, Southern Pine. Italics, Douglas Fir. **a** Spruce. **b** Tax exempt. **c** 5M lots. **d** 8, 10, & 12 ft. lengths. **e** 8 to 16 ft. lengths. **f** Hemlock **g** No. 1 common. **i** 8ft. lengths. **k** No. 3 common. **n** #3. A incl rail rate from North west mills to San Francisco are $11.50 to $15.00 per M ft. bm. From Northern Calif. mills $9.00 by rail, $9.50 by truck. All rates for surfaced stock. For rough, add $3.00 to above figures.

PLYWOOD: Interior Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on ⅜", $143.00; on ¼", $156.00. Exterior ⅜", $148.00, ¼", $164.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included. **a** Lower rate by water shipment. **b** 50,000 lb. minimum.

GLASS, EXPLOSIVES, CHEMICALS

WINDOW GLASS

Discounts from jobbers list, Feb. 1, 1950:

	Single or Double Strength A quality	B quality
Atlanta	77%c	78%a
Baltimore	74%d	76%d
Birmingham	82%	83%
Boston	72–10%	72–10%
Chicago	72%	72%
Cincinnati	74%	74%
Cleveland	74–2–10%	74–2–10%
Dallas	75%	75%
Denver	73%	73%
Detroit	74–10–10%	74–10–10%
Kansas City	76–10%	76–10%
Los Angeles	70%	76%
Minneapolis	71–10%	71–10%
Montreal	40–10–5%bc	40–10–5%b
New Orleans	76%	76%
New York	79%	79%
Philadelphia	74%	76%
Pittsburgh	73%	73%
St. Louis	76–10%	76–10%
San Francisco	60%	68%
Seattle	67%	70%

Glass: **a** Jobbers' list price per box, 14 x 20, ss, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. **b** Discount from list, Apr. 1951; sales tax included, but 8% tax exemption not allowable for. **c** 77% for single strength **d** Discount 6/15/52. **e** 77% for double strength

EXPLOSIVES

Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*

Atlanta	$0 2465
Baltimore	.2455
Birmingham	.1915
Boston	.2455
Chicago	.2455
Cincinnati	.2455
Cleveland	.2355
Dallas	.2540
Denver	.2515
Detroit	.2455
Kansas City	.2515
Los Angeles	.2490
Minneapolis	.2515
Montreal	22.05h
New Orleans	.2515
New York	.4125g
Philadelphia	.2455
Pittsburgh	.2455
St. Louis	.2515
San Francisco	.2455
Seattle	.2490

Price of 60% Ammonia Gelatin is $0.15 per lb. higher than 40% in U. S., $1.75 per 100 lbs. higher in Canada.

Explosives: * Cartridges of 1¼", 1½", 1¾", 2", 2¼", 2½", 3" diameters. Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. **g** In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $20.00 per trip. **h** F.o.b Beloeil (near Montreal), per 100 lb. forcite, 40%. Forcite 60%, $23.80

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0 1915	$0 2265	$0 2465
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.1965	.2315	.2515
Rocky Mtn. States	.1965	.2315	.2515
Pacific N. W. States	.1940	.2290	.2490
Pacific S. W. States	.1915	.2265	.2465

PILES, TIES F.O.B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail Pine*	By Rail Fir
12-in. at butt	6-in.	30 to 50-ft.	$0 51	.....
12-in.—2-ft. from butt	6-in.	50 to 59-ft.	.54	.....
12-in.—2-ft. from butt	6-in.	60 to 69-ft.	.58	.....
12-in.—2-ft. from butt	6-in.	90 to 100-ft.	.....	.....
13-in.—3-ft. from butt	5-in.	91 to 100-ft.	.....	.....
14-in.—2-ft. from butt	6-in.	50 to 69-ft.	.60/.68	.....
14-in.—2-ft. from butt	6-in.	70 to 79-ft.	.78/.88	.93
14-in.—2-ft. from butt	5-in.	80 to 85-ft.	.83/.93	.94
14-in.—2-ft. from butt	5-in.	85 to 89-ft.	.....	1.00
14-in.—2-ft. from butt	5-in.	90 to 100-ft.	.....	1.02

* Pine piling over 80-ft. available only in limited quantities

RAILWAY TIES

Prices f.o.b. per tie for carload lots:

		6" x 8" x 8' Untr.	6" x 8" x 8' Tr.	7" x 8" x 8'6" Untr.	7" x 8" x 8'6" Tr.
Birmingham*	Hardwood, Grade 3	$1 70	$2 55	Gr. 5 $2 25	$3 33
	Grade 2	1 50	2 35	* 4 2 10	3 18
	Grade 1	1 15	2 00	* 3a 1 70	2 78
Chicago	Red Oak		4 00a		4 80a
New York	S. L. Sap Pine	2 00d	4 00d	3 00g	6 00g
	Mixed Oak	2 50d	4 50d	3 50g	6 50g
Philadelphia	Red Oak	2.95/3.15	4.50/4.70	3.60/3.80	5.50/5.75
St. Louis	White Oak	2 75		3 00	
	Red Oak	2 65	3 20a	2 80	3 50a
	Sap Pine or Cypress		3 10a		3 45a
San Francisco	Douglas Fir	2 13ef	3 09ef	2 88bef	4 63cef

Tr.—Treated; Untr.—Untreated. **a** Creosoted. **b** 7" x 9" x 8'. **c** Empty cel **d** 6 x 8 x 8'6" **e** Green. **f** f.o.b. cars. **g** 7 x 9 x 8'6" * Add 75¢/tie freight charge fr Birmingham.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb.	$5 02
Chlorine cylinders, liquid, per lb. f.o.b. works	103
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	29 00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb.	2 30
Soda ash, 58%, in paper bags, per 100 lb. dense	1 70
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1 85
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	14 90

Breaker Parts by AMSCO®
Cut Costs Where It Counts

Impeller Bars, Breaker Bars and Liner Plates of extra tough Amsco Manganese Steel reduce wearing action.

The violent breaking action of primary rock, the high-speed impact of stone thrown by impeller bars against breaker bars and liner plates, give this breaker a terrific pounding. These parts are designed for minimum wear with Amsco Manganese Steel . . . in this heavy-duty "Cedarapids" Model 5360H Impact Breaker, produced by Iowa Manufacturing Company.

Amsco Manganese Steel crusher parts, made of "the toughest steel known", give a much longer life span to these main wear points. This extra-tough steel work-hardens under impact. Abrasion polishes manganese steel, and yet it retains high-ductility qualities.

Breaker parts by Amsco *cut costs where it counts* . . . by reducing parts-replacement time to a minimum, and by giving much longer service life between repair periods.

Amsco makes manganese steel breaker parts for most major manufacturers of crushing, grinding and pulverizing equipment. Call your manufacturer's representative for further information on Amsco breaker parts.

AMERICAN Brake Shoe COMPANY

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American Manganese Steel Division • Chicago Heights, Ill.

OTHER PLANTS IN: DENVER, LOS ANGELES, NEW CASTLE, DEL., OAKLAND, CAL., ST. LOUIS, JOLIETTE, QUEBEC

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, L. M. FELIX, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

▲† **Mass., Chicopee Falls**—DORMITORIES—BA On Or About 11/8—U. S. Eng., 150 Causeway St., Boston, Zone 14, airmen's dormitories, Westover Air Force Base, ENG-19-016-57-81. $1,000,000-$1,250,000. Plans deposit $35.

BUILDINGS—BA

R. I., **Cranston**—SCHOOL—BA 10/23—City, City Hall, 35,000 sq. ft. Thornton Elementary School. $540,000. Plans deposit $100. Fontaine & Bohl, 223 Thayer St., Providence, archts. CD 4/18.

BUILDINGS—SLC

N. H., **Manchester**—CHURCH—Sacred Heart Church, Diocese of Manchester, Most Rev. Matthew Brady, DD-R. C. Bishop of Manchester, Manchester, soon lets contract church, S. Main St. $350,000. Albert J. Roy, 120 Front St., Worcester, Mass., archt.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW HAMPSHIRE**—Dpt. P. Wks. & Hys., Concord, **Frank Palazzi & Sons, Inc.**, 2321 Hartford Ave., Johnston, R. I., CA $1,342,951, 2¾ mi. road mix hy. and 5 bridges, Spaulding Turnpike, Rochester. Bids Sept. 13, awarded Sept. 28. CD 9/18, under LB.

MASSACHUSETTS — Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Sacco Constr. Co., Suffolk St., South Bellingham, Mass. LB $159,002, est. $192,469. Section Lake Ave. north, Worcester. Bids Oct. 2. CD 9/19.

BUILDINGS—LB & CA

Town, General Bldg. Comn., Bd. Selectmen, Town House, Concord, Mass., rejected bids Sept. 21, police and fire station, Heywood and Walden Sts., CONCORD, MASS. LB $402,400. CD 9/28, under LB.

▲ **Park Constr. Co., Inc.**, 40 Court St., Boston, Mass. LB $1,904,450, est. $1,800,000. M-716 ADMISSION-TREATMENT BLDG. State Hospital, MEDFIELD, MASS. State, Dpt. Mental Health, Div. Bldg. Constr., 38 Chauncy St., Boston, Mass. Bids Oct. 5. CD 9/26.

▲ **Sciaba & Co., Inc.**, 86 Shawmut Ave., Boston, Mass. CA Approx. $1,415,000, est. $1,300,000. William F. Pollard Junior HIGH SCHOOL Harris Ave., NEEDHAM, MASS. Town, School Bldg. Comn., 1330 Highland Ave., Needham, Mass. CD 9/18, under LB.

† **J. Slotnik Co.**, 99 Chauncy St., Boston, Mass. LB $335,000 (7 bidders) LAUNDRY addns., alterations, Bldg. No. 14, Veterans Admin. Hospital, NORTHAMPTON, MASS. Veterans Admin., Munitions Bldg., Wash., D. C. Bids Oct. 2. CD 8/8.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

N. Y., **New York**—TOPSOIL and PLANTING—BA 10/26—New York City Housing Auth., 299 Broadway, New York, Zone 7, topsoil and planting for Jefferson Houses (Proj. No. NY-5-16) Sect. II, located in area bounded generally by E. 112 St., Second Ave., E. 113 St., First Ave. and contract limit lines as shown on contract drawings and incl. a play area in Sect. I, Manhattan Boro. Plans deposit $25; street and yard imprvs. Plans deposit $25.

N. Y., **New York**—LIGHTING—BA 10/26—New York City Transit Auth., 370 Jay St., Brooklyn, Zone 1, furnishing, installing fluorescent lighting for stations at Boro Hall-7th Ave. Line, and Boro Hall and Fulton St.-Lexington Ave. Line, IRT Division, Contr. No. E-158.

† Md., **Fort Detrick**—BA 10/30—U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C., exten. existing Roads "A" area, exten. Fence "A" area, ENG-49-080-57-23-(22), ENG-49-080-57-24-(23). CD 10/3.

N. Y., **Port Richmond**—PARKING FIELD—BA 10/31—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Contr. No. 1, general constr., Contr. No. 2, electrical work for public parking field, located at Grove and Maple Aves. Plans deposit $10.

BUILDINGS—BA

Pa., **Perkasie**—SCHOOL—BA 10/25—Pennridge Joint School Bd., Perkasie, 2 story, brick, block, 29,000 sq. ft. Junior High School addn., alterations. $450,000. Micklewright & Mountford, Morrisville, engrs.-archts. CD 4/26/55.

N. Y., **New York**—FIRE HOUSE—BA 10/31—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, general constr., plumbing, heating and ventilating, and electrical work for fire house for Engine Company No. 8 and Ladder Company No. 2, at 165 E. 51 St., Manhattan Boro. Plans deposit $50.

Del., Bear—SCHOOL—Bids Asked—Eden School Dist., Bear, 1 story, brick, block 8 classrooms auditorium & Kruse, 911 Washington St., Wilmington, archts. Eden School addn. $440,000. Extended date. Pope CD 9/24.

BUILDINGS—SLC

▲ N. Y., **New York**—HOSPITAL—Beth Abraham Home, 612 Allerton Ave., Zone 67, soon lets contract altering hospital at site. $2,100,000. Louis A. Abramson, 25 W. 45 St., Zone 19, archt. CD 7/18/55.

HEAVY CONSTRUCTION—LB & CA

Ralph Tomasetti & Co., 1163 58 St., Brooklyn 19, N. Y. LB $726,478 (8 bidders storm and sanitary sewers in Mill Ave., E. 63 St., E. 64 St., E. 65 St., E. 66 St., Strickland Ave., pedestrian street from E. 66 St., to E. 65 St. and from E. 64 St. to E. 63 St.; storm sewers in pedestrian street from E. 65 St. to E. 64 St. and from E. 63 St. to Mill Ave. west side; storm outlets through easements in prolongation of Strickland Ave. and pedestrian street in each case, from United States pier head and bulkhead line of East Mill Basin to E. 66 St.; grading in Mill Ave. from Ave. U, E. 63 St., pedestrian street from E. 66 St. intersection of Strickland Ave. and E. 66 St., BROOKLYN, N. Y. President, Brooklyn Boro, Boro Hall, Brooklyn 1, N. Y. Bids Oct. 3. CD 9/26.

▲ **Zara Contg. Co.**, Engel St., Hicksville, N. Y. LB $2,584,623 (3 bidders) lateral sewers at Baldwin and vicinity town of Hempstead, Sewage Collection Dist. 2-B, Contr. No. 1002-2-B-4, MINEOLA, N. Y. County Exec., Nassau Co., Old County Court House, Mineola, N. Y. Bids Oct. 2. CD 9/6.

John Meehan & Sons, 916 W. Dakota St., Phila., Pa. CA $674,553. sewers Federal St. 19 to 24 Sts. Bid 2677, PHILA., PA. City Dpt. Procurement, City Hall Annex, Phila., Pa. Bids Sept. 25. CD 9/6.

▲ **MARYLAND**—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,
C. J. Langenfelder & Son, Inc., 8427 Pulaski Hy., Baltimore 24, Md. LB $2,965,459. (3 bidders) surf. 7.583 mi. dual hy., Baltimore Co. Beltway Patuxent River to Wilkens Ave., Contr. B 635-11-420, Baltimore Co. Bids Oct. 2. CD 9/18.
MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,
Patapsco Eng. Co., 10 Cromwell St., Baltimore 30, Md. CA $667,278. surf. 6.73 mi. State Rte. 194 also wid'n., resurf. 0.25 mi. State Rte. 26, Ceresville-Woodsboro, Contr. F 508-8-720, Frederick Co. CD 8/22, under LB.

▲ **MARYLAND**—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,
E. D. Plummer & Sons, 961 S. Main St., Chambersburg, Pa. CA $1,243,332. wid'n., relocation, surf. 6.102 mi. State Rte. 34, Sharpsburg-Boonsboro, Contr. W 441-2-620, Washington Co. CD 9/5, under LB.

▲ **MARYLAND**—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,
Williams Constr. Co., Box 145, Baltimore 20, Md. CA $1,959,769. surf. 3.271 mi. dual hy. State Rte. 139 incl. intersections ramps, connecting roads, Contr. B-678-1-420, Baltimore Co. CD 9/21, under LB.

Edgell Constr. Co., Inc., Dover, Del., LB $105,429. Contract S-112, Christian Creek Interceptor, NEWARK, DEL. City, City Hall, Newark, Del. Whitman, Requardt & Assoc., 1304 St. Paul St., Baltimore, Md., engrs. CD 11/25, under Water Supply.

BUILDINGS—LB & CA

▲ **Belmont Iron Works**, 22 and Washington Ave., Phila., Pa. CA Third Unit, Danskammer Point STEAM STATION, 138,000 kw. capacity, NEWBURGH, N. Y. Total Est. $22,000,000. Central Hudson Gas & Electric Corp., South Ave., Poughkeepsie, N. Y. Burns & Roe, Inc., engr., 160 W. Broadway, New York, N. Y., design and supervise construction; **General Electric Co.**, River Rd., Schenectady, N. Y. CA turbo-generator (Newburgh, N. Y.); **Combustion Engineering, Inc.**, 200 Madison Ave., New York, N. Y. CA boiler (Newburgh, N. Y.).

510 Realty Corp., 2095 Broadway, New York 23, N. Y. Owner Builds. $600,000. 19 story APARTMENT, 504-10 E. 86 St., NEW YORK, N. Y. CD 4/27/55.

▲ **Wilaka Constr. Co., Inc.**, 11 E. 44 St., New York 17, N. Y. CA $1,629,000. general constr. PUBLIC SCHOOL 105 Manhattan West 97 St. between Amsterdam and Columbus Aves., NEW YORK, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Sept. 5, awarded Oct. 4. CD 9/13, under LB.

▲ **Archmont Constr. Corp.**, 16 Court St., Brooklyn, N. Y. Separate Contracts. $1,700,000. two 6-story APARTMENTS, Theriot Ave. and Archer St., NEW YORK, N. Y. CD 5/29.

J. C. Felton Contractors, Inc., 26 Court St., Brooklyn 2, N. Y. LB $602,905. (9 bidders) general constr., Laurel HOMES, Proj. No. N.Y.S. 41 C, on Church St., Laurel St., Donald Ave., ROSLYN, N. Y. North Hempstead Housing Auth., Pond Hill Rd., Manhasset, N. Y. Bids Oct. 4. CD 9/6.

▲ **Costanza Contg. Co.**, 6515 Crescent Blvd., Pennsauken, N. J., CA, est. $5,000,000. 1 story 280x440 ft. MANUFACTURING PLANT, Woodcrest, HADDONFIELD, N. J. Hussman Refrigerator Co., 2401 N. Leffingwell Ave., St. Louis, Mo. Louis T. Klauder & Assocs., Phila. National Bank Bldg., Broad and Chestnut Sts., Phila., Pa., engrs.

▲ **The Gillmore-Olson Co.**, 1873 E. 55 St., Cleveland, O. CA $1,670,000. design and construct PLANT addn., BRIDGEPORT, PA. Budd Co.'s, Continental-Diamond Fibre Div., 2535 Hunting Park Ave., Phila., Pa.

Center Square Green, Inc., c/o Sidney Altman, Levering Mill Rd., Bala Cynwyd, Pa. Separate Contracts. $380,000. RESIDENTIAL DEVELOPMENT, Muhlenberg Rd., CENTER SQUARE, PA.

Earl L. Cump, Chambersburg, Pa. CA $650,000. 44x38 ft. and 44x90 ft. HOSPITAL addns., alterations, CHAMBERSBURG, PA. Chambersburg, Pa. Hospital, Chambersburg, Pa. Bids Sept. 19. CD 9/7.

Real Estate Constr. Co., 3207 Brunswick Ave., Drexel Hill, Pa. Separate Contracts. $705,000. RESIDENTIAL DEVELOPMENT, Ashton Twp., CHESTER, PA.

Ricci Constr. Co., Ambler, Pa. Separate Contracts. $350,000. RESIDENTIAL DEVELOPMENT, Marshall and Forrest Aves., West Norriton Twp., JEFFERSONVILLE, PA.

C. Raymond Lukens Builders, Inc., North Wales, Pa. LB $448,000. general constr. 1 story, 51,000 sq. ft. brick block Buchanan Elementary SCHOOL, LEVITTOWN, PA. Bristol Twp. School Auth., Rogers Rd., Bristol, Pa. Bids Sept. 27. CD 9/7.

▲ **Williard, Inc.**, Germantown and Sedgley Aves., Phila., Pa. CA $1,212,600. heating, ventilating and air-conditioning for 17 story Commonwealth OFFICE, Broad and Spring Garden Sts., PHILA., PA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. CD 9/18, under LB.

▲ **McCloskey & Co.**, 1620 W. Thompson St., Phila., Pa. CA $1,200,000. Catholic HIGH SCHOOL, LEVITTOWN, PA. R. C. Archdiocese of Phila., 310 N. 19 St., Phila., Pa. Bids Sept. 12. CD 9/6.

T. J. Kelly & Sons, 1454 E. Greenwood Ave., Phila., Pa. Separate Contracts. $649,000. RESIDENTIAL DEVELOPMENT, Kipling Lane, PHILA., PA.

Sidney Robin, 4745 N. 12 St., Phila., Pa. Separate Contracts. $350,000. SHOPPING CENTER, 8400 Frankford Ave., PHILA., PA.

(Continued on page 91)

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.
CD dates shown are of Construction Daily Issue in which last previous report was published.
OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily
For additional reports see Construction Daily.

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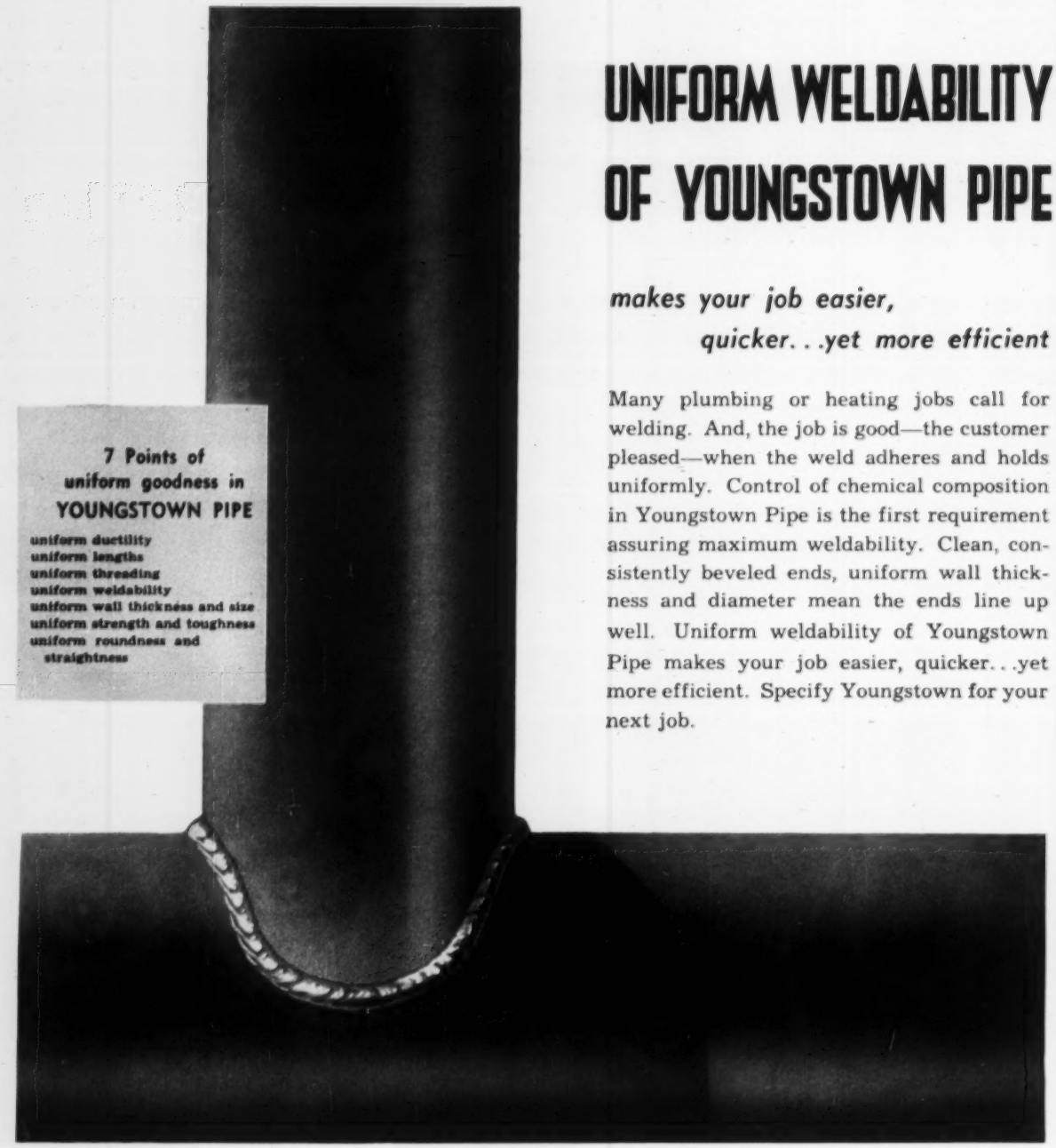

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(Continued from page 88)

Sidney Robin, 4745 N. 12 St., Phila., Pa. Separate Contracts. $550,000. RESIDENTIAL DEVELOPMENT. 8400 Frankfort Ave., PHILA., PA. CD 8/3/55.

Fleming Co., 3 E. Wynnewood Rd., Wynnewood, Pa. LB $350,000. 1 story, part bsmnt., 100x250 ft., brick GARAGE and TRANSPORTATION BLDG. alterations, PHILA., PA. Phila. Gas Works Co., 1401 Arch St., Phila., Pa. Bids Sept. 17. CD 9/7.

▲ U. S. Eng., 24 St. and Maryland Ave., Baltimore 18, Md., cancelled bids to have been opened Sept. 21, construct and finance armed services housing, 1,000 units, (Capehart), FORT GEORGE G. MEADE, MD. $5,000,000. Will re-advertise. CD 9/18.

▲ Dan Ostrow Constr. Co., 1422 K St. N.W., Wash., D. C. Owner Builds. $12,000,000. 650 HOMES, known as Forest Knolls, on Old Bladensburg Rd. tract, SILVER SPRING, MD. Jack Cohen, 7961 Eastern Ave., Silver Spring, Md., archt. CD 1/17.

John K. Ruff, Inc., 3010 Ridgewood Ave., Baltimore 15, Md. LB $864,644. (6 bidders) brick concrete, steel Elmwood Elementary SCHOOL, Dale Ave., TOWSON, MD. Baltimore Co. Bd. Educ., Aigburth Rd., Towson, Md. Bids Oct. 2. CD 9/18.

Jack Meyerhoff & Sons Co., Baltimore Life Bldg., Baltimore 1, Md. Owner Builds. $504,000. 56 frame DWELLINGS, at Dulany Village, north of TOWSON, MD.

▲† Victor R. Beauchamp Co., 431 Cedar St. N.W., Wash., D. C., LB $1,327,619 (15 bidders) PHYSICAL EDUCATION and ACTIVITIES BLDG., Gallaudet College, WASH., D. C. General Services Admin., P. Bldgs. Serv., 19 and F Sts. N.W., Wash. 25, D. C. Bids Oct. 4. McLeod & Ferrara, 1200 18 St. N.W., Wash., D. C., archts. CD 9/12.

James H. Wood, Dover, Del., LB $382,900. 1 story, 75x118 ft., 106x128 ft., brick, block Delmar SCHOOL addn., DELMAR, DEL. Delmar School Dist., Delmar, Del. W. Ellis Preston, 903 Jefferson St., Wilmington, Del., archt. CD 1/5.

▲ McCloskey & Co., 1620 W. Thompson St., Phila., Pa., LB $1,243,000. multi-level PARKING BLDG., Ninth and Shipley Sts., WILMINGTON, DEL. Wilmington Park Auth., City Hall Bldg., Wilmington, Del. Bids Oct. 4. CD 9/24.

SOUTH

HEAVY CONSTRUCTION—BA

▲† La., Alexandria—BA 10/30—U. S. Eng., P. O. Box 867, Little Rock, Ark., three 3 story, masonry 25,000 sq. ft. airmen's $1,000,000-$3,000,000 dormitories, England Air Force Base, Inv. 57-9. Extended date. CD 10/2.

† S. C., Sumter—DORMITORIES, etc.—BA About 11/14—U. S. Eng., 31 Customhouse, Charleston, constr. airmens dormitories, airmens dining hall and boiler house addn. Shaw Air Force Base, ENG-38-081-57-7. CD 8/27.

BUILDINGS—BA

La., Grambling—SCIENCE—BA 10/23—State Bldg. Auth., State Capitol, Baton Rouge, Proj. AE 6 G-7, science bldg. for Grambling College. Plans deposit $60, Van Os & Flaxman, Johnson Bldg., Shreveport, archts.

La., New Orleans—SCHOOL—BA 11/7—Orleans Parish School Bd., 703 Carondelet St., 1 story, brick, 30,000 sq. ft. Ray Abrams Elementary School located in Square 20, Third Municipal Dist., Ninth Ward, $347,079. Plans deposit $50, August Perez & Assn., 314 Audubon Bldg., engrs.

▲† W. Va., Huntington—FEDERAL OFFICE—BA 11/15—General Services Admin., Public Bldg. Service, General Services Office, 7 and S. Sts. S. W., Wash., D. C., construct and finance federal office bldg. $2,979,000. S. E. Silling & Assocs., 314 Masonic Temple, Charleston, W. Va., archts. CD 1/12.

BUILDINGS—SLC

La., New Orleans—Western Electric Co., I. E. Zastraw, eng., 195 Broadway, New York, N. Y., soon lets contract 1 story, 70,000 sq. ft. brick, concrete block distributing house addn., 1111 S. Broad St. $700,000.

HEAVY CONSTRUCTION—LB & CA

▲† Standard Dredging Corp., 80 Broad St., New York, N. Y. LB $2,377,814. widening, deepening Hillsboro Bay Channel, Tampa Harbor, CIVENG-08-123-57-12, FLORIDA. U. S. Eng., P.O. Box 4970, Jacksonville, Fla. Bids Oct. 4. CD 9/5.

LOUISIANA—State Hy. Dpt., Hy. Office Bldg., Baton Rouge,

La.—H. L. Allen & Sons, Elton, La. LB $364,696 (2 bidders) concrete slab span bridges, rein.-con. box culverts, c. conc. Jones Creek and Lively Bayou Bridges, State Rte. 61, 190, 426, S.P. 7-09-26, 817-09-11 and 13-05-08, East Baton Rouge Parish.

La.—Coastal Contractors, Inc., Box 911, Baton Rouge, La. LB $176,880 (2 bidders) furnishing, driving, loading precast concrete test piles, Atchafalaya Floodway crossing, Fed. Aid Interstate Route No. 2, S.P. 700-00-39, Contr. No. 1, St. Landry Parish; LB $397,863 (2 bidders) steel pontoon bridge with concrete slab approach spans 0.1 mi. Belle River Pontoon Bridge, Paincourtville-Belle River Hy., State Rte. 70, S.P. 232-01-26, Assumption and St. Martin Parishes. Bids Sept. 26. CD 9/14 and 9/20.

LOUISIANA—State Hy. Dpt., Hy. Office Bldg., Baton Rouge,

La.—Barber Bros. Co., 2636 Dougherty Dr., Baton Rouge, La. LB $198,807 (2 bidders) soil cement base course, bit. surf. tr. 5.316 mi. McCall-White Castle Hy. State Rte. 405, S.P. 231-02-02, Iberville Parish; La.—Walden & Williams, Mansfield, La. LB $222,423 (2 bidders) shaping soil cement or aggregate type base course surf. tr. 6.67 mi. Benson-Pelican Hy., State Rte. 512 and 483, S.P. 301-02-06, DeSoto Parish; LB $120,575 (2 bidders) aggregate type or soil cement base course, bit. surf. tr. 9.23 mi. Hill-Ajax Hy., State Rte. 174, S.P. 112-04-05 and 112-05-03, 112-06-04, Sabine, DeSoto and Natchitoches Parishes;

La.—W. R. Core, Covington, La. LB $106,084 (2 bidders) shaping roadway, aggregate type or soil cement base course 4.427 mi. Wilmer-Richardson Hy., State Rte. 302, S.P. 277-02-03 and 277-03-06, Tangipahoa and Washington Parishes;

La.—R. T. Henry, Dubach, La. LB $99,891 (2 bidders) aggregate type or soil cement base course, bit. surf. tr. 5.246 mi. Sandy Lake-Utility Hy., State Rte. 423, S.P. 813-14-03, Catahoula Parish;

La.—G. E. Steed, Springhill, La. LB $137,577 (2 bidders) aggregate type or soil cement base course, surf. tr. 5.681 mi. Oak Grove-Braswell School Hy., State Rte. 879, S.P. 862-01-04, West Carroll Parish;

La.—L. M. Winford, Minden, La. LB $112,636 (2 bidders) aggregate type or soil cement base tr. 6.85 mi. Leton-Millerton Hy., State Rte. 521, S.P. 291-01-02 and 291-02-03, Webster and Claiborne Parishes. Bids Sept. 26. CD 9/14.

▲† F & C Engineering Co., 3018 Leeland St., Houston, Tex. LB $5,203,759. control structure Concordia Parish, Inv. 57-34, LOUISIANA. U. S. Eng., foot of Prytania St., New Orleans, La. Bids Oct. 3. CD 8/27.

Keller Constr. Co., Box 439, New Orleans, La. CA $822,000 (4 bidders) sewerage treatment plant for Subsewerage No. 1, METAIRIE, LA. Sewerage Dist. No. 1, 600 Helois Ave., Metairie, La. Bids Aug. 29, awarded Sept. 27. CD 8/17.

J. A. Jones Constr. Co., Box 1818, Shreveport, La. CA $679,700. Proposal No. 13486, North pier and tower at Moisant International Airport, Kenner, NEW ORLEANS, LA. City, 302 City Hall, New Orleans, La. CD 9/27, under LB.

† R. P. Farnsworth & Co., Inc., Box 850, New Orleans, La. CA $839,000. bachelor officers' quarters, Joint Air Reserve Training Center, Alvin Callender Field, NOy 91253, NEW ORLEANS, LA. Officer in Charge of Constr., 8th Naval Dist., Bldg. 16, U. S. Naval Station, New Orleans, La. CD 9/5, under LB.

M. T. Reed Constr. Co., Box 1066, Jackson, Miss. LB $705,631. (3 bidders) approx. 21 mi. sewer extens., pumping stations, sewerage treatment plant, TALLULAH, LA. Mayor and Bd., Tallulah, La. J. M. Fourmay, Hammond, La., engr. CD 1/24/47.

▲ KENTUCKY—Commonwealth of Ky., Dpt. Hys., Frankfort,

Ky.—Southern States Paving Co., 900 44 Ave., Nashville Tenn. LB $76,219 (3 bidders) bit. surf. Class C-1 13.107 mi. Scottsville-Franklin Rd., SP 2-115, Allen Co.;

Ky.—Wood & Bush, 410 Ann St., Frankford, Ky. LB $735,947. (3 bidders) b. conc. surf. Class I 2.252 mi., Morehead-Olive Hill Rd., F13 (&7), SP 22-148, Carter Co.;

Ky.—Edgar Stephens Constr. Co., Cairo, Ill. LB $163,312. (3 bidders) bank or creek grav. 6.703 mi., Barlow-Oscar Rd., S 202 (2), SP 4-241, Ballard Co.;

Ky.—R. R. Dawson Bridge Co., Bloomfield, Ky. LB $136,901. (3 bidders) traffic bound limestone 0.846 mi., Boston-New Haven Rd. (Ky. 52), S-196 (2), SP 62-161, SP 90-605, Larue and Nelson Counties;

Ky.—Arvie M. Burchett, Prestonburg, Ky. LB $99,558. (3 bidders) reconstr. traffic bound limestone 2.704 mi., Darfork-Sassafras Rd., RS 60-218, Scott Co.;

Ky.—Lyons & Breeden, Rogersville, Tenn. LB $333,142. (3 bidders) b. conc. surf. Class I 1.117 mi., Morgantown-Drakesboro Rd. (Ky. 70), S 69 (2), SP 89-63, SP 16-196, Butler and Muhlenberg Counties. Bids Sept. 28. CD 9/12.

▲ Sullivan-Long & Hagerty, 801 5th Ave. N., Birmingham, Ala. CA $1,495,509. constr. Moccason Bend Pumping Station of interceptor sewerage sys., CHATTANOOGA, TENN. City, City Hall, Chattanooga, Tenn. Awarded Oct. 2. CD 10/17/49.

▲ City, Dpt. P. Wks., City Hall, Nashville, Tenn. Own Forces. $1,000,000. install sanitary sewers, NASHVILLE, TENN. CD 4/11.

BUILDINGS—LB & CA

Virginia Engineering Co., Inc., 80 29th St., Newport News, Va., CA $547,000, ADMINISTRATION BLDG. and toll facilities, City of Hampton, Cont. No. B-4 (Hampton Roads Proj.), VIRGINIA. Commonwealth of Va., Dpt. Hys., Central Hy. Office Bldg., 1221 E. Broad St., Richmond, Va. Bids Sept. 26. CD 10/1, under LB.

A. G. Higginbotham Co., Charleston National Bank Bldg., Charleston, W. Va., CA $620,000. J. C. Penney DEPARTMENT STORE, Washington and Capitol Sts., CHARLESTON, W. VA. J. C. Penney Co., 112 Capitol St., Charleston, W. Va. Bids Sept. 12, awarded Oct. 2. CD 9/19, under LB.

▲ Coit Sommers Constr. Co., Vidalia, Ga. CA, $1,452,400. Jefferson County Training SCHOOL (colored); Wrens High SCHOOL (white) addn.; Louisville ACADEMY (white) addn., Bartow Elementary SCHOOL (colored); Wadley Elementary SCHOOL (colored); Wrens Elementary SCHOOL (colored); Wadley High & Elementary SCHOOLS (white) addn.; Stapleton Elementary SCHOOL addn. Avera Elementary SCHOOL (white) addn., Bartown Elementary SCHOOL (white); Mathews Elementary SCHOOL (white) addn., Pine Hill Elementary SCHOOL (colored) addn., in Jefferson County, LOUISVILLE, GA. State School Bldg. Auth., 244 Washington St. S. W., Atlanta, Ga. Bids Oct. 2, awarded Oct. 3. CD 8/31.

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▲ **Babcock Co.**, 2960 Coral Way, Miami, Fla. CA, $1,000,000. 90-unit co-operative APARTMENT, 8000 East Drive, NORTH BAY VILLAGE, FLA. Biscayne Key Club, 8000 East Drive, North Bay Village, Fla. Charles F. McKirahan, 2400 E. Oakland Park Blvd., Ft. Lauderdale, Fla., archt.

Meisner & Hoff, 615 Allendale Ave., Gulfport, Miss. LB $878,000. (5 bidders) therapeutic exercise CLINIC BLDG. and utilities, Veterans Admin. Center, GULFPORT, MISS. Veterans Admin., Munitions Bldg., Wash., D. C. Bids Oct. 2. CD 7/18, under Miss., Biloxi.

Walker Constr. Co., Box 3175, Istrouma Station, Baton Rouge, La. LB $415,300. (8 bidders) Iowa High SCHOOL, Iowa, LAKE CHARLES, LA. Calcasieu Parish, School Bd., Lake Charles, La. Dunn & Quinn, 1735 Ryan St., Lake Charles, La., engrs

Winchester Bros., 5900 S. Front St., New Orleans, La. LB $412,511. (6 bidders) 1 story, brick, 34,000 sq. ft. Edward Douglas White Elementary SCHOOL, Trafalgar St. bounded by Beauvoir and Saltus Sts., NEW ORLEANS, LA. Orleans Parish School Bd., 703 Carondelet St., New Orleans, La. Bids Oct. 2. CD 9/10.

State Bldg. Auth., Capitol Bldg., Baton Rouge, La. rejected bids Aug. 28, state office on Old Charity Hospital site, SHREVEPORT, LA., LB $689,900. CD 9/5, under LB.

W. A. McMichael Constr. Co., Box 508, Shreveport, La. CA $411,644. (7 bidders) ELEMENTARY SCHOOL, Poleman Rd., SHREVEPORT, LA. Caddo Parish School Bd., Shreveport, La. Annan & Gilmer, 525½ Market St., Shreveport, La., archts. Awarded Sept. 28. CD 9/14/51.

MIDDLE WEST

BUILDINGS—BA

Wis., West Allis—SCHOOL—BA 10/26—Holy Assumption Catholic Cong., 1525 S. 71 St., 2 story bsmnt., 62x186 ft., 40x120 ft., school, convent bldg. $350,000. M. Pfaller & Assoc., 7613 W. State St., Wauwatosa, engrs. CD 9/19.

▲ **Ill., Geneva**—SCHOOL—BA 10/30—Bd. Educ., Dist. 304, 1133 Peyton St., high school addn., Logan Ave. $1,365,000. Gilbert Johnson, American National Bank Bldg., Rockfort, archt. CD 11/15.

O., Chagrin Falls—SCHOOL—BA 10/30—Chagrin Falls School Bd., Chagrin Falls, 1 story, masonry, steel, concrete school. $400,000. Plans deposit $35. Mellenbrook, Foley & Scott, 20 Beech St., Berea, archts. CD 7/2.

O., Athens—CHAPEL—BA 11/1—State Dpt. P. Wks., State Opts. Bldg., Columbus, Chapel, Galbreath Memorial Chapel, Ohio University. Plans deposit $25. Perry, Shaw & Hepburn, Kehoe & Dean, 955 Park Square Bldg., Boston, Mass., archts.

▲ **Ind., Hammond**—SCHOOL—BA 11/13—School City, 5935 Hohman Ave., 2 story, bsmnt. tech. vocational high school addn., Sohi Ave. $1,500,000. L. Cosby Bernard & Co., 7241 Forest Ave., archts. CD 3/10/52.

▲ **O., Dayton**—PLANT—Bids Asked—Lockwood Greene Engineers, engrs., 41 E. 42 St., New York, N. Y., 2 story, 120,000 sq. ft. brick, steel plant addn., for McCall Corp., 2219 McCall St. $1,000,000. (Correction—engineers taking bids). CD 10/5.

HEAVY CONSTRUCTION—LB & CA

▲† **Wm. A. Smith Contg. Co.**, 1401 Fairfax Trafficway, Kansas City, Mo., CA $1,759,815, est. $1,795,876, relocation of B. & O. R.R. tracks, Dillon Reservoir Proj., Licking River, CIVENG-46-022-57-6, OHIO. U. S. Eng., 237 Fourth Ave., Huntington, W. Va. Bids Sept. 20, awarded Sept. 28. CD 9/24, under LB.

▲ **OHIO**—State Hy. Dpt., Columbus,
The Crawford Constr. Co., Inc., 782 Charles St., Galion, O., LB $133,857, est. $156,100 (4 bidders) Type T-35 on B-119 and structures 0.751 mi. SR 529-(1.45) (2.35) (2.91), S-109 (4), Village of Cardington, Proj. No. 427, Morrow Co.;
O.—**Chapin & Chapin, Inc.**, Rte. 20, East Norwalk, O. LB $423,647, est. $404,600 (2 bidders) Type T-35, 6.446 mi. SR 163-(31.86-37.16), S-1104 (2), Village of Marblehead, Proj. No. 428, Ottawa Co.;
O.—**Silvestri Bros.**, 713 Andrews Ave., Youngstown, O., LB $333,186, est. $368,100 (4 bidders) Type T-35 and structure 2.308 mi. SR 304-(7.67-7.71), S-1210 (1), Village of Hubbard, Proj. 429, Trumbull Co.;
O.—**George A. Trombley & Son**, 2415 Byrne Rd., Toledo, O. LB $77,957, est. $82,100 (3 bidders) Type T-35 and structures 0.271 mi. SR 579-(1.00) (1.87), S-156 (3), Proj. 430, Wood Co.;
O.—**Carl Myers**, 2257 Wickliffe Rd., Columbus, O., LB $223,945, est. $316,900 (3 bidders) Type T-35 on B-119 0.982 mi. SR 164-(10.46-10.65) (15.53-15.68) SR 518-9.02, Village of Lisbon, Proj. 432, Columbiana Co.; LB $114,896, est. $131,300 (4 bidders) Type T-35 on B-119 0.416 mi. SR 8.10-04, Proj. 433, Harrison Co.;
O.—**V. N. Holderman & Sons, Inc.**, 890 Oakland Park Ave., Columbus, O., LB $4,766,312, est. $5,046,000 (8 bidders) Type T-71 and structures 5.578 mi. USR 30R-3.00, City of Mansfield, Proj. 434, Richland Co.;
O.—**Walter Jones Constr. Co.**, Rte. No. 1, Wooster, O. LB $281,068, est. $372,100 (1 bidder) Type T-35, 2.778 mi. SR 94-(11.28-12.16), (12.59-13.62), City of Orrville, Proj. 435, Wayne Co. Bids Oct. 2. CD 9/20.

▲† **Ferber Co.**, 16 Johnson Ave., Hackensack, N. J. LB $1,533,173, est. $1,551,431 (10 bidders) buildings and fuel storage facilities, Toledo Express Airport for Ohio Air National Guard, ENG-46-022-57-8, TOLEDO, O. U. S. Eng., 237 Fourth Ave., P.O. Box 2127, Huntington 18, W. Va. Bids Oct. 4. CD 9/12.

ILLINOIS—State Div. Hys., Centennial Bldg., Springfield,
Peter Baker & Son Co., Lake Forest, Ill., LB $201,520. b. conc. resurf., patching 12.08 mi. Ill. Route 132 and Ill. Route 59, Ill. Route 173, Lake Co. Bids Sept. 28. CD 9/19.

▲ **ILLINOIS**—Illinois State Toll Highway Comn., 20 N. Wacker Dr., Chicago, Zone 6,
Ryan Constr. Co., 800 E. Michigan St., Evansville, Ind., LB $2,728,904 (17 bidders) Contract N-4-A, 5.49 mi. paving, precast-concrete bridges near Algonquin N. of Elgin, McHenry Co. Bids Oct. 4. CD 9/14.

George D. Hardin, 2130 S. Michigan Ave., Chicago, Ill., LB $448,772, Southwest Side Intercepting Sewer, Villages of Summit, Lyons and McCook, CHICAGO, ILL. Metropolitan Sanitary Sewer Dist., 100 E. Erie St., Chicago, Ill. CD 1/2/53.

▲ **M. A. Lombard & Son Co. and John C. Long, Inc.**, 600 W. Jackson Blvd., Chicago, Ill., LB $1,092,671. pumping station, chemical bldg., filter bldg., water mains addn., b. conc. roadways, LAKE FOREST, ILL. City, City Hall, Lake Forest, Ill. Bids Sept. 17. CD 8/29.

George Hardin, 637 S. Des Plaines St., Forest Park, Ill., CA, $108,000. sanitary sewers Kostner from 95 to 93 St., 93 St. from Crawford to Kenton Sts., OAK LAWN, ILL. Village, Village Hall, Oak Lawn, Ill. CD 6/14.

† **U. S. Eng.**, 600 E. Jefferson Ave., Detroit, Mich., cancelled bids to have been opened Oct. 9, dredging Amherstburg and Detroit River channels down river from Detroit to 27 ft. depth, MICHIGAN. CD 9/6.

† **S. J. Groves & Son**, Temple Bldg., Minneapolis, Minn. LB $771,595. airfield pavements, K. I. Sawyer Air Force Base, MARQUETTE, MICH. U. S. Eng., 600 E. Jefferson Ave., Detroit, Mich. Bids Sept. 20. CD 9/12.

BUILDINGS—LB & CA

E. J. Benes & Co., 2860 E. 130 St., Cleveland 20, O. CA Est. $500,000 (4 bidders) 60,000 sq. ft. Heater Div. PLANT addn., E. 65 and Central Ave., CLEVELAND, O. Eaton Mfg. Co., 739 E. 140 St., Cleveland, O. Awarded Sept. 27. CD 7/12.

▲ **H. K. Ferguson Co.**, 1783 E. 11 St., Cleveland 14, O. CA Est. $2,400,000. design and construct, 55,000 sq. ft. RESEARCH CENTER, 84-acre site, Warrensville Center Rd., WARRENSVILLE HEIGHTS, O. Standard Oil Co. of Ohio, Midland Blvd., Cleveland 15, O. CD 9/12/55.

▲ **Hagerman Constr. Corp.**, 403 Strauss Bldg., Fort Wayne, Ind., LB $1,280,965 general contract HIGH SCHOOL with GYMNASIUM, COLUMBIA CITY, IND. Columbia City Joint High School Bldg. Corp., Columbia City, Ind. Bids Sept. 26. CD 8/28;
Industrial Piping & Eng. Co., 1340 Grant St., Fort Wayne, Ind., LB $387,823 plumbing, heating and ventilating work for high school (Columbia City, Ind.).

▲ **Earl W. Jackson Real Estate Co.**, 2104 State St., East St. Louis, Ill., Owner Builds, $1,250,000. 100 brick, stone RESIDENCES, Twin Echo Subdivision north of here, between Rte. 157 and Rte. 159, CASEYVILLE, ILL.

▲ **Fluor Corp.**, 2500 S. Atlantic Blvd., Los Angeles, Calif., CA, $4,000,000. 1 story brick ROLLING MILL addn., CHICAGO, ILL. Hydrometals, Inc., 2959 W. 47 St., Chicago, Ill.

Fruin-Colnon Contg. Co., 1706 Olive St., St. Louis 3, Mo., CA, $650,000. 1 story, 161x282 ft., brick, concrete, steel WAREHOUSE and OFFICE, 29 St. and St. Louis Ave., EAST ST. LOUIS, ILL. Illinois Power Co., 417 Missouri Ave., East St. Louis, Ill.

J. H. Findorff & Sons—601 W. Wilson St., Madison, Wis., CA, $531,110 general contract, married students APARTMENT, MADISON, WIS. University of Wisconsin Bldg. Corp., 171 Basiom Hall, Madison, Wis. Bids Sept. 27. CD 9/14.

▲ **Owner**, c/o Charles N. Agree, Inc., archt., 1140 Book Bldg., Detroit 26, Mich. Owner Builds. $1,500,000. SHOPPING CENTER, incl. 25 stores, 13 Mile Rd. and Harper Rd., ST. CLAIR SHORES, MICH. CD 5/22.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

Mo., St. Louis County—BA 10/25—Metropolitan St. Lewis Sewer Dist., William Q. Kehr, exec. dir., 506 Olive St., St. Louis, Zone 1, Sect. B, sanitary trunk sewer in Maline Creek Trunk subdistrict involving 9,127 lin. ft. 33- to 60-in. rein.-con. sewers, relocation sect. of channel of Maline Creek, $400,000. Plans deposit $10. Pitzman Co. of Surveyors & Engineers, 804 Pine St., St. Louis, Zone 1, and Stifel W. Jens, 101 S. Meramec Ave., Clayton, Zone 5, engrs. CD 2/13.

▲ **Colo., Denver**—BA 10/26—Denver Water Bd., City & County Bldg., Vasquez Tunnel and lining Jones Pass Tunnel, incl. (1) constr. Vasquez Tunnel 7 ft. diam. Horseshoe section approx. 18,000 ft. long extending from headquarters of Clear Creek to Vasquez Creek incl. excav., installing supports and concrete lining; (2) completing 9,090 ft. concrete lining of existing Jones Pass Tunnel to standard 7 ft. diam. in Horseshoe Section, 15,570 ft. long. (3) rein.-con. structure connecting existing Jones Pass Tunnel with the Vasquez Tunnel consisting of stilling pool, gate structure, parshall flume, transition and cut and cover conduit. $3,500,000. CD 7/25.

† **Okla., Altus**—SWIMMING POOL, etc.—BA 11/7—U. S. Eng., Box 61, Tulsa, Zone 2, officers swimming pool, bathhouse, appurtenances, Altus Air Force Base, ENG-34-066-57-8. $210,000. CD 8/24.

† **Iowa**—BA 11/15—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., Sch. 1, two 230-kv circuit breaker for Sioux City Substation, Missouri River Basin Proj., Spec. DS 4772. L. N. McClellan, ch. engr.

▲ **Colo., Denver**—BA 11/16—Bd. Water Comrs., City and Denver Co., City-County Bldg., Williams Fork concrete dam and reservoir $3,000,000. CD 10/4, under LB.

† **Ark., Blytheville**—INFIRMARY—BA About 11/27—U. S. Eng., P.O. Box 867, Little Rock, infirmary bldg. heating plant, etc. Blytheville Air Force Base, Blytheville, ENG-03-050-57-10. CD 8/27.

BUILDINGS—BA

▲ **Okla., Tulsa**—HIGH SCHOOL—BA 10/30—Bd. Educ., 410 S. Cincinnati St., James Monroe Junior High School. $1,000,000. David G. Murray, 4232 S. Peoria St., archt. CD 6/8/55.

HEAVY CONSTRUCTION—LB & CA

▲† **Pine Bluff Sand & Gravel Co.**, foot of Nebraska St., Pine Bluff, Ark. LB $1,186,486, Sch. A; $1,201,921, Sch. B. (5 bidders) repairing, constr. dikes and revetments, Missouri River at Floyd-Omadi Bends, near Sioux City, Inv. 25-066-57-28, IOWA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Oct. 4. CD 9/19.

▲ **MISSOURI**—State Hy. Dpt., Jefferson City,
Koss Constr. Co., 205 Farm Bureau Bldg., Des Moines, Iowa. CA $1,754,252. two 24 ft. c. conc. 8.402 mi. Laclede Co. Bids Sept. 28. CD 9/14.

† **McCormick-Erling Co.**, 633 1st Ave. N., Fargo, N. D. CA $849,623. airfield paving, (ANG), Hector Field, Inv. 25-066-57-16, FARGO, N. D. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Sept. 21. CD 9/27, under LB.

City P. Service Bd., Navarro and Villita Sts., San Antonio, Tex. Purchase and Hire, $250,000, power transmission lines, vicinity Mission Road Plant; $562,000, expand and improve Ball Park Power Sub-station, SAN ANTONIO, TEX. CD 1/25.

Dembke, Clough & King, Inc., Colorado Springs, Colo., LB $207,462. water filtration plant impvs., CANON CITY, COLO. City, City Hall, Canon City, Colo. Harold Hoskins & Assoc., 725 9 St., Greeley, Colo., engrs.

† **H. W. Pride**, 611 W. 41 St., Denver, Colo., LB $475,834, 2 story, part bsmnt., 67x341 sq. ft. Technical Training Bldg., Lowry Air Force Base, ENG-05-611-57-1, DENVER, COLO. Dpt. Air Force, Bldg. 905, Room 234, Lowry Air Force Base, Denver, Colo. Rocky Mountain Eng. Co., 503 Farmers Union Bldg., Denver 3, Colo., engr.-archt. CD 11/21/51.

Tiago Constr. Co., 1399 S. 2 St. W., Salt Lake City, Utah, CA $619,219. concrete pipe, CA, $500,024, clay pipe; sanitary sewer collection sys. (Phase 3), DERBY, COLO. South Adams County Water & Sanitation Dist., 6596 E. 70 St., Derby, Colo. Bids Sept. 19, awarded Sept. 28. CD 9/12.

BUILDINGS—LB & CA

State Dpt. Admin., P. T. Peterson, dir. Purchases, State Capitol, St. Paul, Minn., rejected bids Aug. 30, rehabilitation of Cottages No. 1, 2 and 3, State **Anoka** State Hospital, ANOKA, MINN. Will readvertise. CD 9/5, under LB.

▲ **Standard Constr. Co.**, 250 Builders Exchange Bldg., Minneapolis, Minn. CA $1,721,400. general constr. two BUILDING addns., Cambridge State School and Hospital, CAMBRIDGE, MINN. State Dpt. Admin., 19 State Capitol, St. Paul, Minn. CD 9/28, under LB.

Watson Constr. Co., Baker Bldg., Minneapolis, Minn. CA $898,000. general constr. CENTRAL WAREHOUSE and MFG. PLANT, GOLDEN VALLEY (P.O. MINNEAPOLIS), MINN. Minneapolis-Honeywell Regulator Co., 2753 Fourth Ave. S., Minneapolis, Minn. CD 9/25, under LB.

▲† **General Services Admin.**, P. Bldgs. Service, 2306 E. Bannister Rd., Kansas City, Mo., rejected bids Sept. 18, construct and finance, COURT HOUSE and POST OFFICE, COUNCIL BLUFFS, IOWA, LB $1,506,100, constr. only; LB $1,800,006, constr. and finance. CD 9/24, under LB.

▲† **C. H. Leavell & Co.**, 1900 Wyoming St., El Paso, Tex. CA Est. $2,500,000. first phase, engine TESTING AREA, for the Air Force, FORT CROWDER, MO. Rocketdyne, div. North American Aviation, Inc., Neosho, Mo.

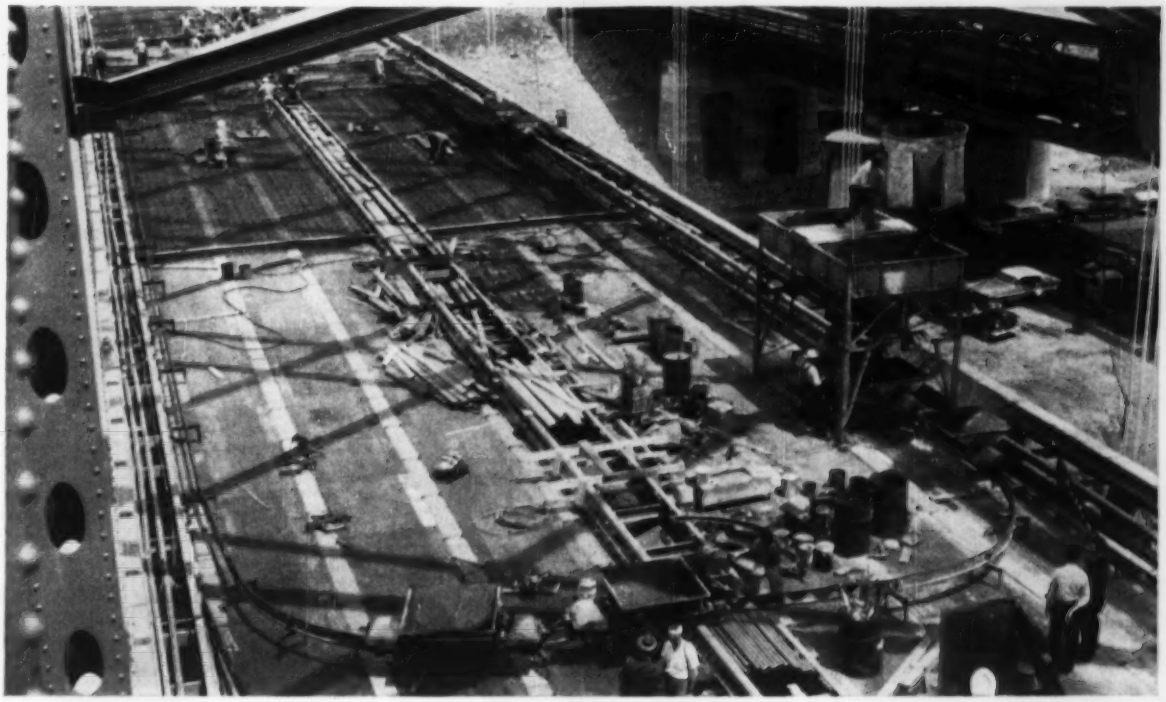
J. S. Alberico Constr. Co., 1550 Irving Ave., St. Louis 14, Mo. CA Est. $350,000. 124x60 ft. brick, stone, steel, concrete CHURCH, 2 story, bsmnt., 34x61 ft. PAROCHIAL RESIDENCE and 26x22 ft. GARAGE, Kingshighway and Odell Ave., ST. LOUIS, MO. Holy Innocents Catholic Parish, Rev. L. A. Rost, pastor, c/o Archdiocesan Bldg. Comm., Rev. James R. Hartnett, exec. secy., 1810 Lindell Blvd., St. Louis 8, Mo. Bids Aug. 16. CD 8/8.

† **Baldwin Co.**, Wallace Bldg., Little Rock, Ark. CA $527,700. PHYSICAL MEDICINE and REHABILITATION Bldg. No. 89, NORTH LITTLE ROCK, ARK. Veterans Admin., Munitions Bldg., Wash., D. C. Bids Sept. 11, awarded Sept. 28. CD 9/19, under LB.

▲ **Parson Constr. Co.**, 2512 Deer Park Blvd., Omaha, Neb. CA est. $2,000,000. wholesale baking PLANT, OMAHA, NEB. P. F. Petersen Baking Co., 1123 Jackson St., Omaha, Neb. J. T. Allan, Brandeis Theatre Bldg., Omaha, Neb., archt. CD 6/18/53.

▲ **Westinghouse Electric Corp.**, 3 Gateway Center, Pittsburgh, Pa. CA $10,000,000. 175,000 kw STEAM TURBINE, TULSA, OKLA. Public Service Co., 6 and

(Continued on page 94)



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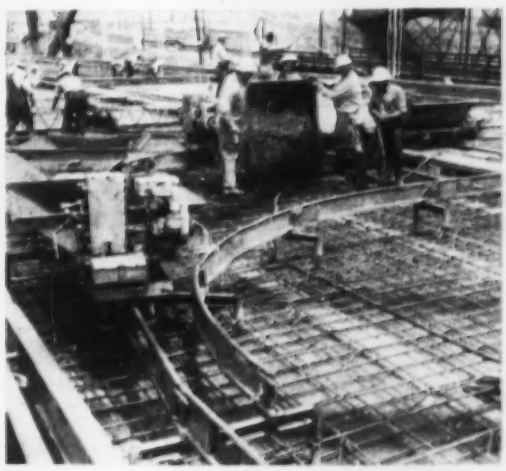

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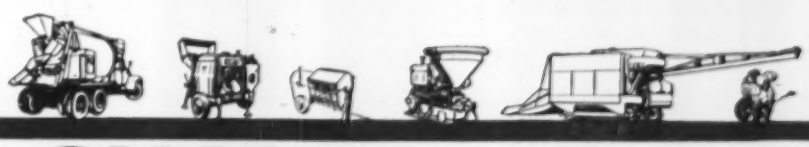

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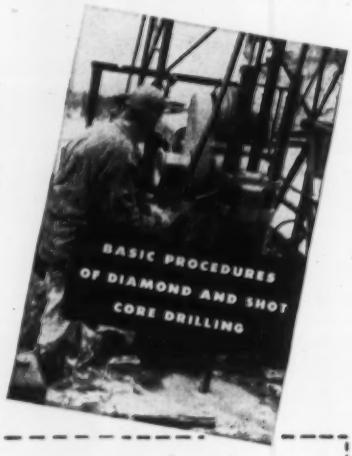

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(Continued from page 92)

Main Sts., Tulsa, Okla. Awarded Sept. 20. CD 7/30/55.

Langley Constr. Co., 2400 N. Lewis St., Tulsa, Okla. CA $491,140, est. $500,000. Lindberg Elementary SCHOOL, TULSA, OKLA. Bd. Educ., 410 S. Cincinnati St., Tulsa, Okla. Wolaver & Ryan, 1851 E. 71 St., Tulsa, Okla., archts. Awarded Oct. 1. CD 6/8/55.

▲ **Fisher Constr. Co.**, Box 6325, Houston, Tex. CA $1,773,477. SHOPPING CENTER, BEAUMONT, TEX. Gateway Shopping Center, c/o Irving R. Klein & Assocs., archts., 1317 Austin St., Houston, Tex. CD 10/2, under LB.

▲ **Cowdin Bros.**, 411 S. Haskell St., Dallas, Tex. LB $1,119,488, NEWSPAPER PLANT addn., DALLAS, TEX. Dallas Times Herald, Herald Square, Dallas, Tex. Bids Sept. 14. CD 8/14.

Robert E. McKee, General Contractor, Inc., Box 562, El Paso, Tex. LB $983,800. BANK, EL PASO, TEX. Federal Reserve Bank of Dallas, 400 S. Ackard St., Dallas, Tex. Bids Oct. 2. CD 9/28/55.

Marvin Henry, Builders, Inc., 4208 Ella Blvd., Houston, Tex. Own Forces. $369,000. 24 DWELLINGS; $367,175, 21 DWELLINGS, in Sharpstown, HOUSTON, TEX. CD 9/6.

Angelo Mascari, Builder, 502 Friar Tuck St., Houston, Tex. Own Forces. $362,110. 26 DWELLINGS; $355,500, 22 DWELLINGS, HOUSTON, TEX. CD 9/6.

▲ **Chalmers & Borton Constr. Co.**, 200 E. 1st St., Hutchinson, Kan., CA $3,000,000. GRAIN ELEVATOR, SAGINAW, TEX. C & G Grain Co., National Bank of Topeka Bldg., Topeka, Kan. CD 9/19.

▲† **Eagle Constr. Corp.**, Box 181, Loveland, Colo. LB $1,120,447. Glendo POWER PLANT and switchyard, Missouri River Basin Proj., near Glendo, Spec. DC 4967, WYOMING. Bureau Reclamation, Dpt. Interior, Glendo, Wyo. Bids Oct. 4. CD 9/18.

▲† **Mead & Mount**, 1560 Denver Club Bldg., Denver, Colo. CA $4,282,635. 6 EM BARRACKS, ENG-25-066-56-95, CAMP CARSON, COLO. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids July 20. CD 8/28, under LB.

Robbins Constr. Co., Box 116, Denver, Colo., CA $738,000 general contract, 3 story full bsmnt., 37,200 sq. ft. Blue Cross-Blue Shield OFFICE BLDG., DENVER, COLO. Colorado Hospital Service & Colorado Medical Service, Inc., 1655 Lawrence St., Denver, Colo. Bids Sept. 25, awarded Sept. 29. CD 9/25.

Dillon Constr. Co., 325 S. Main St., Pueblo, Colo., CA $463,440. two 2 story and one 3 story 39,800 sq. ft. HOUSING BLDGS., GUNNISON, COLO. Western State College of Colorado, Shirley Savoy Hotel, Denver, Colo. Bids Sept. 28. Awarded Oct. 1. CD 9/17.

FAR WEST

HEAVY CONSTRUCTION—BA

† **California**—BA 11/1—U. S. Eng., 1209 8 St., Sacramento, levee repairs and stone protection along Stockton deep water channel San Joaquin and Contra Costa Counties, $260,000. CD 10/13/55.

Wash., Moses Lake — HANGAR DOORS — BA 11/6 — Boeing Airplane Co., 7755 E. Marginal Way, Seattle, Zone 4, furnishing, installing hangar doors for hangar. Naramore, Bain, Brady & Johanson, 904 7 Ave., Seattle, Zone 1, archts. CD 5/14.

† **Washington**—BA 11/8—Bureau Reclamation, Dpt. Interior, Bldg. 1 A, Denver Federal Center, Denver, Colo. Sch. 1, one 4,000-kva outdoor, power transformer for Frenchman Springs Pumping Plant Switchyard, Columbia Basin Proj., Spec. DS 4773. L. N. McClellan, ch. engr. CD 9/10.

† **Washington**—BA 11/15—Bureau Reclamation, Dpt. Interior, Bridgeport, Brewster Flats Pumping Plants and discharge lines, Chief Joseph Dam Proj., near Brewster, Spec. DC-4766; adv. ENR 10/18. CD 9/10.

BUILDINGS—BA

Calif., Baldwin Park—SCHOOL—BA 10/30—Baldwin Park School Dist., 3699 N. Holly Ave., 1 story, frame, stucco 30,600 sq. ft. Nubia School. $525,000. Extended date. Kistner, Wright & Wright, 1125 W. 6 St., Los Angeles, archts. CD 10/4.

HEAVY CONSTRUCTION—LB & CA

† **Duffy Reed Co.**, Twin Falls, Idaho. LB $159,044, est. $121,832. drains at pumping division Minidoka Irrigation Project, Spec. 100C-262, IDAHO Bureau Reclamation, Dpt. Interior, Rupert, Idaho. Bids Sept. 25. CD 9/12.

▲ **IDAHO**—State Hy. Dpt., Boise.

Idaho—Duffy Reed Constr. Co., Twin Falls, Idaho. LB $997,558. roadway, bit. surf. 8.487 mi. U. S. 30 North, Power Co.;

Idaho—Asfett Constr. Co., Twin Falls, Idaho. LB $203,983. roadway, roadmix bit. surf. 7.327 mi. State Hy. 79, Jerome Co. Bids Oct. 2.

† **Bos Constr. Co.**, 1035 Grayston St., Berkeley, Calif. LB $135,860, est. $94,650 (3 bidders) Trinity River bridge superstructure and county road relocation, Station 5 plus 55 to Station 8 plus 50 for Trinity Dam, Central Valley Proj. DC 4751. CALIFORNIA Bureau Reclamation, Dpt. Interior, Weaverville, Calif. Bids Oct. 2. CD 8/17.

† **An-Nan Constr. Co.**, 3660 Winters St., Del Paso Heights, Calif. LB $168,313. emergency repairs East Levee Yolo Bypass in Reclamation Districts 827 and 1600, Yolo Co., CALIFORNIA. U. S. Eng., 1209 8 St., Sacramento, Calif. CD 7/6/55.

CALIFORNIA—State Div. Hys., 1120 N St., Sacramento.

McGillivray Constr. Co., 65 St. and Folsom Blvd., Sacramento, Calif. CA, $536,124. grading, paving 2.2 mi.

Sign Rte. 24 between 0.4 mi. north of Florin Rd. and 0.1 mi. north of Sutterville Road, Sacramento, Sacramento Co. Bids Sept. 19, awarded Oct. 2. CD 9/26, under LB.

▲ **Guy F. Atkinson Co.**, Box 459, Long Beach, Calif. CA, **$8,176,490**. Ninth St. Bridge over Los Angeles Flood Control Channel, LONG BEACH, CALIF. Long Beach Bd. Harbor Comrs., 1333 El Embarcadero, Long Beach, Calif. Bids Sept. 11, awarded Oct. 1. CD 9/26, under LB.

▲ **Ukropina-Polich-Krall**, P.O. Box 105, San Gabriel, Calif. LB **$9,376,605**. (2 bidders) siphons for Colorado River Aqueduct, Spec. 502, LOS ANGELES, CALIF. Metropolitan Water Dist. of Southern Calif., 306 W. 3 St., Los Angeles, Calif. Bids Oct. 4. CD 9/24.

Matt J. Vukojevich & John Kordich, 6124 Furgeson Dr., Los Angeles, Calif. LB **$195,813**, est. $202,000. (7 bidders) sanitary sewers in 123 St., et al Athens, CI 1753, LOS ANGELES, CALIF. Los Angeles Co., Hall of Records, Los Angeles, Calif. Bids Sept. 28. CD 8/6.

J. Putnam Henck, 3947 Sierra Way, San Bernardino, Calif. LB **$265,235**. (11 bidders) Spec. 8, Mountain Ave. Reservoir, MONROVIA, CALIF. City Council, 415 S. Ivy St., Monrovia, Calif. Bids Oct. 1.

Bowe & Crail Constr. Co., 15134 S. Indiana Ave., Paramount, Calif. LB **$66,300**. (2 bidders) Spec. 6, reservoir foundations for 2 steel reservoirs, Emerson Flats Reservoir and East Norumbega Reservoir (Monrovia, Calif.).

▲ **Fred J. Early Constr. Co.**, 369 Pine St., San Francisco, Calif. LB **$1,394,495**, sewage and drainage facilities for future subdivision development and already built Elder Track and Rio Park Subdivisions, SACRAMENTO, CALIF. Meadowview Assessment Dist., c/o county engr., County Admin. Bldg., Sacramento, Calif.

Elco Corp., 2020 E. Spring St., Long Beach, Calif. CA, **$168,529**, est. $184,600. Bolsa Chica flood control channel from Station 0 plus 00 to Station 165 plus 25, Seal Beach, SANTA ANA, CALIF. Orange Co. Flood Control Dist., Court House, Santa Ana, Calif. Bids Aug. 28. CD 8/13.

BUILDINGS—LB & CA

Stanton Reed Constr. Co., 720 S. Palm Ave., Alhambra, Calif. CA, **$562,600**, est. $540,000. San Fernando HIGH SCHOOL addn., San Fernando, LOS ANGELES, CALIF. Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Bids Sept. 14. CD 9/20, under LB.

Inland Empire Builders, 5971 Jurupa St., Monticello, Calif., Owner Builds, **$846,000**. 94 stucco DWELLINGS, Sorrento Dr., Monroe, Monticello Ville Dester Tr., MONTICELLO, CALIF.

J. Putnam Henck, 3947 Sierra Way, San Bernardino, Calif. CA **$652,454**. SCIENCE BLDG. and LIBRARY addns., alterations, REDLANDS, CALIF. University of Redlands, Redlands, Calif. Bids Sept. 18. CD 9/26, under LB

▲ **Tom E. Norcross**, 6053 Atlantic Blvd., Long Beach, Calif. CA, **$1,327,300**. Aviation HIGH SCHOOL, REDONDO BEACH, CALIF. South Bay Union High School Dist., 297 N. Francisca St., Redondo Beach, Calif. Bids Sept. 25. CD 10/1, under LB.

▲ **Wohl-Calhoun Co.**, 845 N. Highland Ave., Los Angeles, Calif., CA **$1,038,393**, 115,000 sq. ft. tilt-up Riviera HEADQUARTERS and WAREHOUSE, RIVIERA, CALIF. Southern California Gas Co., 188 Flower St., Los Angeles, Calif. Bids Sept. 14. CD 12/7.

▲ **Williams & Burrows**, 500 Harbor Blvd., Belmont, Calif., LB **$4,964,482** (5 bidders) 7 story, rein.-con. NURSING WING at Santa Clara County Hospital, near SAN JOSE, CALIF. Santa Clara Co., Court House, San Jose, Calif. Bids Oct. 3. CD 9/6.

CANADA

HEAVY CONSTRUCTION—BA

† **Ont., Ottawa**—CANTEEN—BA 10/23—Defence Constr. Ltd. 56 Lyon St., canteen bldg., R.C.A.F. Station, $350,000. Plans deposit $100. CD 2/9/55.

HEAVY CONSTRUCTION—LB & CA

▲ **Canadian Dredge & Dock Co. Ltd.**, Harbor Commission Bldg., Toronto, Ont., CA, **$1,600,222**, wharf exten. and dock on Wellington St., HAMILTON, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. CD 10/3, under LB.

▲ **Dominion Bridge Co. Ltd.**, Lachine (Montreal), Que., LB **$6,061,640** (3 bidders) superstructure for two vertical lift bridges across St. Lambert Lock, Lachine Section of St. Lawrence Seaway, QUEBEC. St. Lawrence Seaway Auth. No. 2 Temporary Bldg., Ottawa, Ont. A. G. Murphy, c/o owner, 685 Cathcart St., Montreal, Que., Ch. engr. Bids Oct. 2. CD 9/4.

BUILDINGS—LB & CA

▲ **Frankel Steel Constr. Ltd.**, East Don Roadway, Toronto, Ont., LB **$1,439,700**, structural steel work for 14 story STRUCTURE housing sub-post office, income tax dpt., National Film Bd., Veteran's affairs, etc., Adelaide St. E. and Victoria St., TORONTO, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Oct. 3. CD 9/5.

Milne & Nicholls Ltd., 57 Bloor St. W., Toronto, Ont. CA, **$750,000**. PLANT and OFFICE addns., TORONTO, ONT. Barber-Greene Canada Ltd., Don Mills, Toronto, Ont. 3ids Aug. 28, awarded Oct. 1. CD 9/10, under LB.

▲ **E. G. M. Cape & Co.**, 4898 Western Ave., Montreal, Que., CA, Total est. **$2,000,000**, foundations for textile PLANT, VALLEYFIELD, QUE. Montreal Cottons Ltd., Valleyfield, Que. Awarded Oct. 1.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Calif., Eureka**—Humboldt Bay Municipal Water Dist., Eureka, voted **$12,000,000** bonds, dam on Mad River near Ruth and dam near Arcata, and constr. pipe lines to deliver water to City of Eureka and other users. CD 9/10.

▲ **Conn., Hartford**—Metropolitan Dist., 115 Broad St., 4 filter beds at West Hartford Filtration Plant, $2,000,000; water main extens., impres., Bloomfield, Hartford and West Hartford, **$250,000**. Warren N. Gentner, c/o owner, engr. CD 10/13/56.

Fla., Miami—City, 3332 Pan American Dr., Zone 33, voted **$850,000** bonds Sept. 25, high pressure water mains. CD 7/17.

▲ **O., Cleveland**—City, Dpt. P. Utilities, Emil J. Crown, dir., City Hall, Zone 14, Lee Rd. water main exten. **$1,000,000**. Havens & Emerson, 640 Leader Bldg., Cleveland, Zone 14, consult. engrs. George W. Hamlin, c/o owner, Utilities Eng. Div.

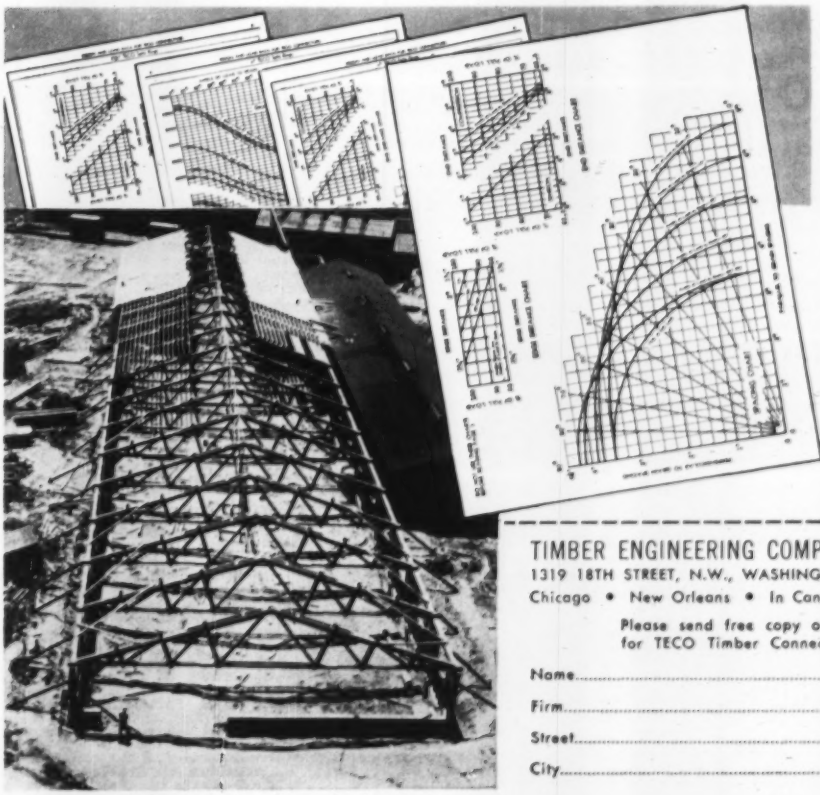
▲ **S. D., Aberdeen**—City, City Hall, voted **$1,975,000** bonds Sept. 18, water sys. impres. Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs. CD 9/7.

▲ **Ont., Toronto**—The Municipality of Metropolitan Toronto, 67 Adelaide St. E., water main, Runnymede Rd. and Colbeck Ave., 36 in. water main from above location westerly to pumping station located near St. Albans Rd. and Mt. Royal Ave. **$2,199,000**.

SEWERS, WASTE DISPOSAL

▲ **Conn., Hartford**—Metropolitan Dist., 115 Broad St., trunk sewer extens., Bloomfield, East Hartford, Hartford, Wethersfield and Windsor, Newington, Rocky Hill, $5,000,000; sewer pumping station, south of Loomis School, Windsor, $200,000; enclosing conduit two large drainage ditches South Meadows between Weathersfield Ave. and N. Y., N. H. and H. R.R. tracks for storm and sanitary sewers, Hartford, $100,000; storm sewers installation, Capitol Ave., underpass under N.Y., N.H & H. R.R., Hartford, $100,000; storm sewers Farmington Ave., South Whitney St. and Warrenton Ave., Hartford, $110,000; eliminating drainage ditches by constr. storm sewers Cemetery Brook area to drain into proposed Cemetery Brook conduit, Hartford, $100,000. Warren N. Gentner, c/o owner, engr.

Kan., Coffeyville—City, City Hall, sewerage sys. impres. $750,000. A. C. Kirkwood & Assoc., 7800 Paseo Rd., Kansas City, Mo., consult. engrs. CD 8/17.



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▲ **Mo., Joplin**—City, City Hall, sewerage sys. expansion. $1,404,146. Allgeier, Martin & Assoc., 1204 Main St., consult. engrs.

▲ **Ont., Toronto**—Municipality of Metropolitan Toronto, 67 Adelaide St. E., incinerators at various locations, $10,000,000; trunk sewer from Lambton Golf Course to Weston Sewage Treatment Plant, $1,250,000; Franklin McArthur Associates Ltd., 38A Mattson Rd., consult. engrs.; sanitary trunk sewer from West Don trunk sewer to Sheppard Ave. (Wilket Creek Sanitary Trunk Sewer), $900,000; R. V. Anderson & Assoc. Ltd., 316 Felbrigg Rd., consult. engrs.

BRIDGES

▲ **Calif., Modesto**—Stanislaus Co., Court House, $5,000,000 bond election Nov. 6, roads and bridges throughout the county. CD 6/26.

▲ **Conn., Hartford**—Hartford Bridge Auth., 11 Asylum St., Hartford,

Glastonbury-Wethersfield—high-level bridge across Connecticut River. $12,000,000. DeLeuw, Cather & Brill, Inc., 202 E. 44 St., New York, N. Y., consult. engrs. Barstow, Mulligan & Vollmer, 112 W. 42 St., New York, N. Y., design engrs. Geniovese & Shumavon, 294 Elm St., New Haven, engrs.

Glastonbury—bridge approaches, from Glastonbury Expressway to east end of bridge with overpasses at Naubuc Ave. and Main St., Glastonbury. $2,920,000. Goodkind & O'Dea, 1214 Dixwell Ave., Hamden, consult. engrs. John J. Mozzochi, 265 Hebron Ave., Glastonbury, ground surveys. Edward B. Burdick, c/o owner, engr.

Wethersfield—bridge approaches from relocated Route 9 with overpasses at Elm St. and relocated Route 9. $2,920,000. Edwards, Kelsey & Beck, 250 Park Ave., New York, N. Y., consult. engrs. Loomis & Sullivan, 641 Farmington Ave., Hartford, ground surveys. Edward B. Burdick, c/o owner, engr. CD 9/18.

S. D., Aberdeen—City, City Hall, voted $375,000 bonds Sept. 18, storm sewers, pipe line, sludge basin. Black & Veatch, 4706 Broadway, Kansas City, Mo. consult. engrs. CD 9/7.

STREETS AND ROADS

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15,

Guernsey Co.—convert 23 mi. Rte. 43 into superhighway, incl. 6 bypasses, incl. 6 mi. around Cambridge and 2 mi. around Middlebourne. $20,000,000. Vogt, Ivers, Seaman & Assoc., 20 N. Wacker Dr., Chicago, Ill., consult. engrs.

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15,

Lawrence Co.—4-lane highway, US 52 between Ironton and Chesapeake, approx. 11 mi. long. $6,000,000. Bids in June, 1957. Michael Baker & Assocs., Rochester, Pa., consult. engrs.

▲ **Tex., Weatherford**—City, street paving. $1,000,000. Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs. CD 9/26.

EARTHWORK, WATERWAYS

▲ **Tex., Corpus Christi**—Nueces County Navigation Dist., c/o R. E. Sallee, Guggenheim-Cohn Bldg., deepening, widening LaQuinta Channel, leading to Reynolds Aluminum Plant, LaQuinta. $1,000,000. CD 10/11/44.

▲ **Yukon Territory**—Northern Canada Power Comn., 150 Wellington St., Ottawa, Ont., earthfill dam on Whitehorse Rapids to provide the area with hydro-electric power, Whitehorse. $7,000,000. Montreal Eng. Co. Ltd., 244 St. James St., Montreal, Que., consult. engrs. Bids in about 2 months.

AIRPORTS

▲† **Ala., Mobile**—AIRFIELD EXPANSION—U. S. Eng., P.O. Box 1169, Mobile Zone 7, airfield paving, $3,000,000-$4,000,000, Bids in December; airfract fueling, $100,000-$500,000, Bids in November; fire and crash truck station, under $100,000, Bids in May; hangar, $500,000-$1,000,000; two warehouses, $100,000-$500,000, Bids in February and May; airmens dormitories, $500,000-$1,000,000; airmens dining hall, $100,000-$500,000, Bates Airfield, for Air Force Reserve Training.

† **Ariz., Yuma**—JET TEST CELL—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., plans by Charles G. Polacek, 3424 N. Central Ave., Phoenix, rein.-con. jet test cell, $190,000; operations base building, sales exchange store, Vincent Air Force Base, Yuma County Airport, $475,000. CD 8/21.

▲ **Tex., Dallas**—HANGAR, etc.—Southwest Airmotive Co., 8401 Cedar Springs St., 160x800 ft. 5-unit hangar bldg. and business aircraft terminal $1,860,000; distribution sales and office, $350,000; addnl. concrete ramps for plane parking, $375,000; addnl. storage hangars, $500,000; 11-acre rein.-con. paved plane parking ramp, $550,000; 80x400 ft. "Plane-O-Tex" storage hangar, $390,000, 35-acre site Love Field Base.

LATIN AMERICA

Mexico, Mexico City — CINEMATOGRAPHIC CITY — Banco Nacional Cinematografico, Mexico City, plans cinematographic city, offices of the bank and various movie companies. $500,000.

▲ **Venezuela**—Comision de Estudios para la Electrificacion del Caroni, Toore Sur, Piso 6, Centro Simon Bolivar, Caracas, D. F., will accept until Oct. 3 preliminary information from contractors who wish to bid on dams and related installation for Macagua No. 1, hydro electric plant on Caroni River.

AMERICANS ABROAD

▲ **Iraq, Baghdad**—HOTEL—Ministry of Development of Iraq, Baghdad, plans by Welton Becket & Assocs., 5657 Wilshire Blvd., Los Angeles, Calif., U. S. A., hotel. $8,000,000. Hilton Hotels International, Waldorf-Astoria, New York 22, N. Y., U. S. A., will manage.

FOREIGN

▲ **Jordan and Saudi Arabia**—RAILROAD—Govt. of Saudi Arabia, Jeddah, plans 500 mi. railroad from Ma'an, Jordan to Medina, Saudi Arabia. $25,000,000-$50,000,000. Brown & Blauvelt, engrs., 468 Madison Ave., New York 16, N. Y., will design and supervise. (Correction—engineer and location of project). CD 8/28, under CA, Saudi Arabia.

PUBLIC BUILDINGS

▲ **Ala., Birmingham**—AUDITORIUM—City, City Hall, $1,000,000 bond election Nov. 6, air-conditioning and expanding city's municipal auditorium. CD 10/1, under LB.

▲ **Calif., Auburn**—SCHOOLS—Placer Joint Union High School Dist., Auburn, plans by Lawrence G. Thomson, 125 W. 3 St., Chico, Loomis High School, Loomis, $1,134,000; Colfax High School, Colfax, $856,000.

▲ **Calif., Fremont**—SCHOOL—Washington Union High School Dist., high school. $2,984,934. Will start in 1957.

▲ **Calif., Redding**—SCHOOLS—Shasta Union High & College School Dist., Redding, bond election Nov. 6, schools. $3,000,000.

▲ **Calif., Redlands**—SCHOOLS—Redlands Joint Union High School Dist., Redlands, $4,300,000 bond election Nov. 27, Junior High and High Schools. CD 12/23/53.

▲ **Calif., San Rafael**—OFFICE—Marin Co., Court House, county government office. $4,805,000. To go ahead in 1959.

Conn., Southington—SCHOOL, etc.—Town, Town Hall, high school addn. and auditorium. $950,000.

▲ **Conn., Wallingford**—SCHOOL—Town, Town Hall, plans by Ketchum, Gina & Sharpe, 227 E. 44 St., New York, N. Y. West Side Elementary School $750,000. East Side Elementary School, Durham Rd., $550,000. Severud, Elstad & Krueger, 415 Lexington Ave., New York, N. Y., consult. engrs. CD 8/8.

Conn., West Hartford—POLICE HEADQUARTERS, etc.—Town, Town Hall, police headquarters, maintenance garage, court office and court room. $850,000.

▲ **Conn., West Hartford**—SCHOOLS—Town, Town Hall, elementary school, Rockledge Country Club area, $1,250,000; gymnasiums in Charter Oak Elmwood and Morley Elementary Schools and cafeteria in Smith Elementary School. $635,000.

▲ **Del., Newark**—DORMITORY—University of Delaware, plans by McKim, Mead & White, 101 Park Ave., New York, N. Y., 4 dormitory bldgs. $2,000,000. Severud Elstad & Kruger, 415 Lexington Ave., New York, N. Y., engrs. CD 2/24/56.

▲ **Del., Stockley**—MEDICAL PLANT—Delaware Hospital Bd. Trustees, plans by Victorine & Samuel Homsey, 917 Gilpin Ave., Wilmington, medical plant addn. to hospital. $1,000,000. Louis & Doane, Penna. R.R. Bldg., Wilmington, consult. engrs. CD 10/27/55.

Fla., Marianna—HOUSING—Marianna Housing Auth. plans by Henry T. Hey, Marianna, 80 unit housing, $500,000.

Fla., Pompano Beach—HOUSING—Pompano Beach Housing Auth. plans by John J. Harte Co., 284 Techwood Dr. N.W., Atlanta, Ga., housing, $725,000.

Ill., Glencoe—SCHOOL—School Dist. 35, 1000 Green Bay Rd., plans by Perkins & Will, 309 W. Jackson Blvd., Chicago, Glencoe West Grade School, Dundee and Forest Way Rds. $975,000.

▲ **Ill., Lombard**—SCHOOL—School Dist. 87, 670 Crescent St., Glen Ellyn, plans by Nicol & Nicol, 23 E. Jackson Blvd., Chicago, 2 story, brick, steel, concrete, high school. $3,000,000.

▲ **Ind., South Bend**—LIBRARY—School City of South Bend, 228 S. St. Joseph St., plans by Urbahn Bryton Burrows, 645 Madison St., New York, N. Y., library, Wayne and Main Sts. $1,000,000.

Ind., South Bend—SCHOOL—School, City of South Bend, 228 S. St. Joseph St., plans by Andrew Toth, 2158 Portage Ave., Northwest Elementary School, Brentwood addn. S. Lincolnway W. $625,000.

Iowa, Davenport—SCHOOL—North Scott School Dist., Davenport, high school, near here. $800,000.

Iowa, Greenfield—SCHOOLS—Bd. Educ., voted $595,000 bonds Sept. 18, grade school and existing school addn. $700,000. Smith-Voorhees-Jensen, Silleto & Assocs., 206 Davidson Blvd., Des Moines, archts. CD 9/7.

Ky., Covington—HOUSING—Covington Municipal Housing Comn., City Bldg., 50 unit housing, near 12th and Greenup Sts. $700,000. CD 3/26/52.

Ky., Danville—HOUSING—Danville Municipal Housing Comn., plans by Meriwether, Marye & Assoc., 248 E. Short St., Lexington, 48 unit housing. $600,000.

▲ **Ky., Lexington**—SCIENCE, etc.—State Div. Purchases, Frankfort, plans by Meriwether Marye & Assoc., 248 E. Short St., Lexington, and Ellerbe & Co., consult. archts., E. First National Bank Bldg., St. Paul, Minn., 2-3 story, brick, rein.-con. science bldg. and power plant, hospital in connection with University Medical School; University of Kentucky, located on present experiment station farm, bordering Rose St. and Nicholasville Pike, $15,000,000, Proctor-

(Continued on page 99)

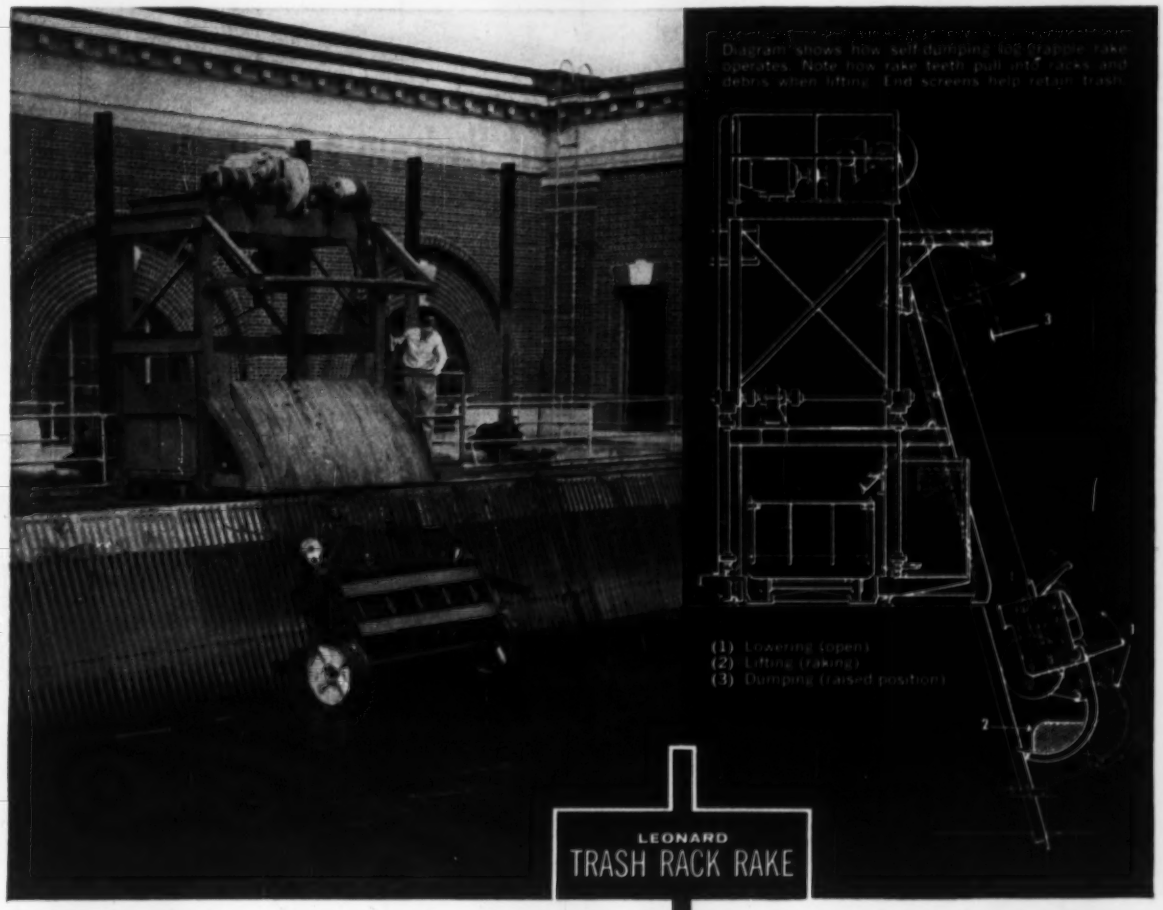
Diagram shows how self-dumping log grapple rake operates. Note how rake teeth pull in racks and debris when lifting. End screens help retain trash.
(1) Lowering (open)
(2) Lifting (raking)
(3) Dumping (raised position)
1
2
3
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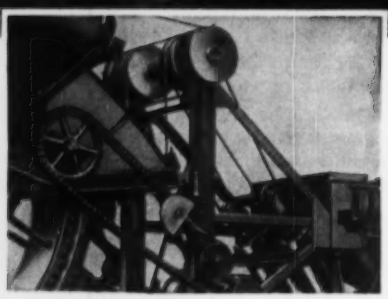

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(Continued from page 96)

Ingels, 915 S. Limestone St., Lexington, consult. engrs. for heating, plumbing, ventilating and electrical work. CD 3/24/55.

▲ **Kan., Manhattan**—DORMITORIES—State, Bd. Regents, State House, Topeka, plans by Dwight Brown, state archt., State House, Topeka, apartment dormitories for married students, Kansas State College, $2,100,000.

Md., Cumberland—HOUSING—Cumberland Housing Auth. plans by S. Russ Minter, 72 Pershing St., 80 housing units, $800,000.

▲ **Md., Rockville**—SCHOOLS—Montgomery Co. Bd. Educ. plans by Justement, Elam & Darby, 2011 K St. N.W., Wash., D. C., Newport Mills Rd. Junior High School, Kensington, $1,800,000; plans by William Denton, 1300 Connecticut Ave. N.W., Wash., D. C., Montgomery Hills Junior High School addn., Silver Spring, $400,000; plans by Ronald Senseman, 327 Carroll Ave. N. W., Wash., D. C., Eastern Junior High School addn., Silver Spring, $400,000. CD 2/2/53.

▲ **Md., Upper Marlboro**—SCHOOLS—Prince George's Co. Bd. Educ., plans by Walton & Maddon, 3510 Rhode Island Ave., Mount Ranier, Surrattsville Senior High School, Clinton, $1,225,000; Northwestern High School, Colesville Rd., Hyattsville, $610,000; Langley Park Elementary School Langley, $395,000; plans by Ronald Senseman, 327 Carroll Ave., Wash., D. C., elementary school, Oxon Hill, $358,000; plans by Paul Kea, 5109 Baltimore Ave., Hyattsville, elementary school in Rogers Heights area, Hyattsville, $354,000; Buck Lodge Road Junior High School, Hyattsville, $1,400,000; Harmody Hills area Elementary School, Seat Pleasant, $364,000.

▲ **Mass., Fairhaven**—SCHOOL—Town, Junior High School Bldg. Comn., plans by Israel T. Almy, 56 North Main St., Fall River, Junior High School. $1,100,000. CD 4/27/54.

▲ **Mass., North Adams**—SCHOOL—Bd. Educ., constr. Senior High School, Greylock Elementary School addn., cafeteria addn. at Mark Hopkins School, $4,000,000. CD 1/27/50.

▲ **Mass., Topsfield**—SCHOOL—Towns Topsfield, Middleton and Boxford, Regional School Bldg. Comn., Topsfield Regional High School. $2,200,000. To go ahead in 1957-58.

▲† **Michigan**—HOUSING—U. S. Eng., 600 E. Jefferson Ave., Detroit, Zone 26, housing for military personnel at Nike installations, 192 units, Detroit Vicinity, $3,000,000.

▲ **Mich., Detroit**—HOUSING—Detroit Housing Comn., Mark K. Herley, asst. dir.-secy. 409 Griswold St., 1,300 housing units, incl. two 15 story bldgs., and 2 story bldgs., Jay, Maple, Chene, St. Aubin and Macomb Sts. $17,500,000. Submitted for federal approval. CD 1/10/45.

Mich., Grand Rapids—SCHOOL—Bd. Educ., Forest Hills School Dist., Grand Rapids, Forest Hills High School, Hall St. east of Cascade Rd. $800,000.

Mich., Whiteford—SCHOOL—Whiteford Agricultural School Dist., John Schindler, supt. Schools, plans by Francis A. Faulhaber, 128 East Monroe St., Adrian, Junior Senior High School. $725,000. Bids about Nov. 15. CD 7/17.

▲ **Mo., Columbia**—SCHOOL—Bd. Educ., $1,680,000 bond election Oct. 23, schools, Marshall & Brown, 1016 Baltimore Bldg., Kansas City, Mo., archts.

Mo., Parkville—SCHOOL—Platte Co. School Dist. R-5 plans by Terrell & McCall, 1016 Baltimore Bldg., Kansas City, Senior High School, near here. $500,000.

Mo., St. Louis—CHILDREN'S CENTER—City, Frank J. McDevitt, pres. Bd. Pub. Service, 304 City Hall, 12 Blvd. and Market Sts., Zone 3, plans by Wm. B. Ittner, Inc., 408 Bd. Educ. Bldg., 911 Locust St., Zone 1, children's center for emergency care and studying children, group care and treatment, etc. $900,000, Hale & Harvie, 1350 Syndicate Trust Bldg., 917 Olive St., Zone 1, struct. engrs. J. R. McClure & Assoc., 114 W. Madison Ave., Kirkwood, Zone 22, mech. and elec. engrs. CD 6/7/55.

Mo., St. Louis—CHILDRENS—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12 Blvd. and Market St., Zone 3, plans by Wm. B. Ittner, Inc., 408 Bd. Educ. Bldg., 911 Locust St., Zone 1, children's bldg. for juvenile delinquents detention, $800,000, Hale & Harvie, 1350 Syndicate Trust Bldg., 917 Olive St., St. Louis, Zone 1, struct. engrs. J. R. McClure & Assoc., 114 W. Madison Ave., Kirkwood, Zone 22, mech. and elec. engrs. CD 1/21/55.

▲† **Mo., St. Louis**—OFFICE—General Services Admin., Pub. Bldgs. Service, 19 and F Sts. N.W., Wash. 25, D. C., 482,000 sq. ft. federal office in downtown area presumably block bounded by 11, Pine and Chestnut Sts. and 12th Blvd. $13,750,000. No appropriation. CD 2/19/54.

▲ **Neb., Scottsbluff**—POWER PLANT—City, City Hall, $1,300,000 bond election Nov. 6, power plant and distr. CD 10/12/55, under Unclassified.

▲ **N. H., Durham**—LIBRARY—University of New Hampshire, Office of President, Durham, plans by Tracy & Hildreth, 4 Davis Court, Nashua, library. $1,500,000. Bids in October. J. U. Wiesendanger, East Winthrop, Me., structural engr. CD 4/5.

N. J., Passaic—BUS TERMINAL—City, City Hall, bus terminal in east section business district and bus terminal and garage in western section. $593,000.

▲ **N. M., Lovington**—COURTHOUSE—Lea Co., c/o Courthouse voted $1,200,000 bonds Sept. 18, for courthouse, Geo. Graves, 618 S. Turner St., Hobbs, archt. CD 9/10.

N. Y., East Meadow—LIBRARY—East Meadow Library Bd., East Meadow, referendum vote on Oct. 27, 1 story air conditioned library, Front St. and Newbridge Ave. $600,000. Gibbons & Heidtmann, 211 E. 37 St., New York Zone 16, archts.

N. Y., New York—RECREATION CENTER—Children's Aid Society, 105 E. 22 St., plans by Gibbons & Heidtmann, 211 E. 37 St., childrens recreation center and clinic, 87 St. $500,000.

▲ **N. Y., New York**—HOUSING—New York City Housing Auth., 299 Broadway, plans by Katz, Waisman, Blumenkranz, Stein, Weber, Architects Associated, 551 Fifth Ave., Zone 17, Castle Hill Houses, 11 twelve story bldgs., 3 twenty story bldgs. on 43 acre tract bounded by Olmstead, Seward, Cincinnati, Havemeyer and Lacombe Aves., NYS-76, $29,700,000. CD 4/4/55.

N. Y., New York Mills—SCHOOL—Bd. Educ. plans by Myron A. Jordon, Main St., Richfield Springs, high school. $990,000.

▲ **N. Y., Rennselaer**—HOUSING—Rennselaer Housing Auth. plans by Urbahn, Brayton, Burrows, 654 Madison Ave., New York, 86 housing units. $1,290,745. Thomas L. Gleason, A.I.A., 200 State St., Albany, engr.

▲ **N. Y., West Utica**—COMMUNITY CENTER, etc.—Town Bd., West Utica, community center and recreation area. $1,500,000.

▲ **O., Chagrin Falls**—SCHOOL—Bd. Educ., Orange School Dist., Chagrin Falls, $1,250,000 bond election Nov. 6, school expansion.

▲ **O., Piqua**—NUCLEAR POWER PLANT—City, City Hall, nuclear power plant. $4,010,400. Design and development authoried by AEC. North American Aviation Co., Los Angeles International Airport, Los Angeles 45, Calif., consult. engrs.

▲ **O., Steubenville**—HOUSING—Steubenville Housing Auth., Steubenville, plans by John J. Rietz, 210 N. 6 St., 124 unit housing. $1,740,750. Edgar W. Watson, 208 N. 6 St., engr.

▲ **Pa., Enola**—SCHOOL—E. Pennsboro Twp. School Auth., School Bldg., plans by E. G. Good, 904 N. 2nd St., Harrisburg, Junior-Senior High School. $1,750,000.

▲ **Pa., Foxcroft**—HOSPITAL—General State Auth., 18 and Herr Sts., Harrisburg, plans by Paul Henon, Fox Bldg., Phila., Whiteside, Foster, Damon & Doane, Inc., Sharon, Hill & Abraham Levy, 1411 Walnut St., Phila., Delaware County Mental Hospital, $14,500,000. CD 3/27.

▲ **Pa., Harrisburg**—HOUSING—Harrisburg Housing Auth., City Hall, plans by J. W. Minick Assoc., 1601 N. Front St., 330 public housing units, $4,000,000.

▲ **Pa., Westfield**—SCHOOL—Northwestern Tioga Co. Joint School Bd. plans by E. G. Good, 904 N. 2nd St., Harrisburg, high school. $1,200,000.

S. C., Columbia—HOUSING—Columbia Housing Auth., John A. Chase, admin., City Hall, plans by J. B. Urquhart, Paometto Bldg., 74 housing units. $700,000.

▲ **S. C., Columbia**—DIAGNOSTIC TREATMENT CENTER—South Carolina Mental Health Comn., G. A. Buchanan, chn., State Capitol, diagnostic and treatment center for mental patients, Columbia Division of South Carolina State Hospital. $2,339,875. Lafaye, Fair, Lafaye, 1226 Sumter St., Columbia, consult. engrs.

▲ **Tex., Beeville**—HOUSING—Beeville Housing Auth., Beeville, plans by Milam & Roper, 368 Casa Linda Plaza, Dallas, 280 unit housing. $3,250,000.

▲ **Tex., Del Rio**—HOUSING—Del Rio Housing Auth., Del Rio, plans by Roscoe P. DeWitt, 2025 Cedar Springs Rd., Dallas, 500 units family housing. $5,750,000. CD 4/18/50.

▲ **Tex., Laredo**—HOUSING—Laredo Housing Auth., 1820 Houston St., plans by Howard Meyer, 2907 Maple St., Dallas, 345 unit housing. $3,750,000. CD 9/18.

▲ **Tex., Odessa**—HOSPITAL—Comrs. Ector Co., Court House, Ector County Hospital addn. $1,500,000. CD 9/12/52.

▲ **Tex., Port Lavaca**—COURT HOUSE, etc.—Calhoun Co., Port Lavaca, plans by Rustay & Martin, 1811 Crawford St., Houston, court house, jail, agriculture. $1,000,000. CD 8/11/55.

Utah, Ogden—SCHOOL—Bd. Educ., 2351 Grant Ave., plans by Eber F. & John L. Piers, 2726 Harrison Blvd., Hillcrest Elementary School, Second St. and Van Buren Ave. $570,000. CD 5/4.

▲† **Utah, Salt Lake City**—FEDERAL BLDG.—General Services Admin., Bldg. 41, Denver Federal Center, Denver, Colo. 7 or 8 story 150,000 sq. ft. per story federal bldg. $7,600,000. no appropriation.

▲ **Va., Lorton**—INDUSTRIAL FACILITIES—D. C. Govt., Director Bldgs & Grounds, 499 Pa. Ave. N.W., Wash., D. C., constr. industrial facilities at Lorton Reformatory, $1,000,000. CD 3/9/53.

▲ **Wash., Moses Lake**—SCHOOLS—School District 161, Moses Lake, special levey voted on Sept. 11 high school $1,000,000; Junior High School $500,000; 3 grade schools, $400,000 each. CD 7/26.

▲ **Alaska, Anchorage**—HIGH SCHOOL—School Bd., Anchorage, Junior High School. $1,875,000. CD 12/11/53.

Ont., Port Credit—SCHOOL—South Peel Bd. Educ., Port Credit High School, plans by Hanks & Irwin, 2848 Bloor St. W., Toronto, Secondary School, Lorne Park, $750,000.

COMMERCIAL BUILDINGS

Ala., Birmingham—OFFICE, etc.—Owner, c/o J. H. Perkins Co., Inc., agt., 505 19 St. Ensley, Birmingham, plans by Wilmot Douglass, 2922 7 Ave. S., 2 story, air-conditioned, marble, stone, brick, glass office and store, S. 20 St. and Highland Ave. $750,000.

▲ **Calif., Newport Beach**—HOSPITAL—Hoag Memorial Hospital, Presbyterian, 124 W. 4th St., Los Angeles, plans by Chamber & Hibbard, 124 W. 4th St., Los Angeles, multi story rein.-conc. 125 bed hospital addn., at $2,250,000.

▲ **Calif., Oakland**—APARTMENT—Fred Magiorra, 2000 Telegraph Ave., plans by Fred Confer, 366 40th St., 20 story apartment, $1,300,000.

Calif., Oakland—COMMUNITY CENTER—Jewish Welfare Federation, 724 14th St., plans by Warnecke & Warnecke, Financial Center Bldg., 1 story with partial second story, 30,000 sq. ft. Jewish community center (offices, gym, auditorium, club rooms, swimming pool) $500,000.

Calif., Redwood City—MEDICAL-DENTAL—Redwood City Medical Men, c/o E. G. Holling, representative, 630 El Camino Real, Redwood City, medical-dental convalescent center, $600,000. Hillhaven, Inc., Tacoma, Wash., lessee.

▲ **Calif., San Bruno**—SHOPPING CENTER—Consolidated Lands Co., 715 El Camino Real, San Bruno, shopping center, Junipero Serra Blvd. $5,000,000.

▲ **Conn., New Haven**—OFFICE—Southern New England Telephone Co., 227 Church St., plans by Douglas Orr, 111 Whitney Ave., 9 story; 150x300 ft. exterior glass and metal panes, limestone trim, air conditioned, office bldg. College St. $10,000,000. Myer, Sturges & Jones, 101 Park Ave., New York, N. Y., consult. engrs. Henry A. Pfisterer, 111 Whitney Ave., owners' engr. CD 5/24.

▲ **Conn., Stamford**—APARTMENTS—Urban Redevelopment Comn., 159 Main St., Stamford, plans by Mayer, Whittlesey & Glass, 31 Union Square, New York, N. Y. two apartment bldgs., one 6 story and other 10 story, incl. 1,386 apartment units, West Side Redevelopment, Richmond Hill Ave. $2,000,000.

▲ **D. C., Wash.**—MEMORIAL—National Guard Assocs. of U. S., 100 Indiana Ave. N. W., plans by Justement Elam & Darby, 2011 K. St. N. W., memorial bldg., Mass Ave. and North Capitol St. $1,000,000.

Fla., Coral Gables—APARTMENT—Edward M. Marshall, 21 Alhambra Circle, plans by Curtis E. Haley, 204 Aragon Ave., 7½ story, co-operative apartment, Coral Way and Gardena St. $500,000.

▲ **Fla., Miami Beach**—HOSPITAL—Mount Sinai Hospital, 4300 Alton Rd., plans by Smith & Korach, 1630 Lenox Ave., hospital, Allison Island, $5,000,000. Bids after first of year. Norman J. Digman & Assoc., 260 Palermo Ave., Coral Gables, consult. engrs. Bids to be opened Oct. 8, concrete piling for Mount Sinai Hospital, Allison Island.

▲ **Fla., Ocala**—POST OFFICE, etc.—General Services Admin., General Services Bldg., Wash. 25, D. C., construct and finance, post office and court house Lease-purchase program. $1,580,000. No appropriation.

Ga., Macon—DORMITORIES, etc.—Mercer University, Macon, plans by W. Elliott Dunwody, 646 Arch St. dormitories and student center bldg., plans by W. B. Webb, Jr., 4348 Mikado Ave., faculty residence. $750,000. CD 9/25.

▲ **Ill., Benton**—POST OFFICE, etc.—General Services Admin., General Services Bldg., Wash. 25, D. C., construct and finance, post office and court house, Lease-purchase project. $1,100,000. No appropriation.

Ill., Palatine—SHOPPING CENTER—Comet Constr. Co., 1848 N. Milwaukee Ave., Chicago, plans by Martin J. Green, 730 Milburn St., Evanston, and Comm-Comm & Moses, 6350 N. Clark St., Chicago, comet gardens shopping center, paving, Northwest Hy. near Robertson Ave., $750,000. Carl L. Gardner & Assoc., 1 N. La Salle St., Chicago, consult. engrs.

Ill., St. Charles—OFFICE, etc.—Owner, c/o, Gene Beak & Assoc., agts., 3034 N. Devon, Chicago, plans by C. L. Dahlquist & Assoc., 1625 Glenview Rd., Glenview, office bldg. and shopping center, Main St. between 14th & 17th north of Walnut, $800,000.

Ill., Wheaton—COUNTRY CLUB—Arrowhead Golf & Country Club, c/o Samuelson & Sandquist, archts., 7161 Cicero Ave., Lincolnwood, country club addn., swimming pool, Rt. 59. $500,000.

▲ **Ind., Greenwood**—SHOPPING CENTER—W. J. Grossman, 22 E. 63 St., Indianapolis, shopping center. $1,000,000. Hans F. Geiger & Assocs., 1737 N. Meridian St., Indianapolis, consult. engrs. CD 9/27.

Ind., Indianapolis—SYNAGOGUE—Indianapolis Hebrew Congregation, Jack B. Kammins, pres., 10th and Delaware Sts., plans by C. Wilbur Foster & Assoc., 4741 E. Washington St., synagogue, 1 and 2 story, masonry and glass contemporary style temple, seating 1500 persons, on 17 acre site in Meridian Hills, bounded by Arden, Meridian, and Pennsylvania, $750,000. CD 9/20/51.

▲ **Kan., Parsons**—HOSPITAL—Labette Co., Court House, Oswego, $960,000 bond election Nov. 6, 4 story, humit., 45x235 ft. with 40 ft. L hospital replacement facility, $1,000,000. Ash & Harrison, 307½ Laura St., Wichita, archts. Sisters of St. Joseph, Mercy Hospital, Parsons, Kan., to operate hospital. CD 9/20, under Commercial Buildings.

Kan., Wichita—PROFESSIONAL—Owner, c/o Mobley & Safely, archts., 915 No. Broadway, professional bldg., $500,000.

Ky., Lexington—HOUSE—J. Graham Brown, Brown Hotel, Third and Broadway, Louisville, Campbell House addn. $600,000.

▲ **Ky., Louisville**—HOTEL—J. Graham Brown, Brown Hotel, Third and Broadway, Suburban Hotel on north side Shelbyville Rd., west of intersection of Watterson

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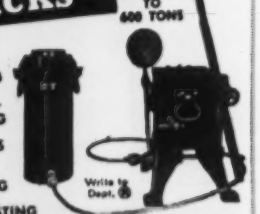

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Expressway and Shelbyville Rd., $1,700,000. CD 2/8/55.

Ky., Newport—APARTMENT—W. L. Hay, 120 Crown Ave., Fort Thomas, will not construct apartment on Grand Ave. at Carrothers Rds. $500,000. Zone change on property denied. Project abandoned. CD 6/28.

Mass., Cambridge—DORMITORY—Leslie College, 29 Everett St., plans by William L. Galvin, 38 Brattle St., dormitory, $540,000. CD 8/20.

▲ **Mich., Detroit**—MARKET—Eastern Market Merchants Assn., Elias Lewis, pres., 1429 Gratiot St., plans by Victor Gruen & Assoc., 135 S. Doheny St., Beverly Hills, Calif., Eastern Market Development, $10,000,000. CD 7/19.

▲ **Mich., Detroit**—OFFICE, etc.—H. M. Seldon Co., 300 Penobscot Bldg., plans by Valentine & Hoyem, 1985 Gratiot Blvd., Marysville, 11 story office and shopping center, 5-level parking garage, constr. central lagoon, 7 acre site, West McNichols and Meyers Sts. $15,000,000.

▲ **Mich., Sterling**—HOMES, etc.—Abegreen, 13324 W. Seven Mile Rd., Detroit, 4,000 homes and shopping center. $10,000,000.

Mo., Kansas City—SHOPPING CENTER—Wm. Boedefeld, 4446 Euclid St., Kansas City, Mo., plans by Wm. Boedefeld, 4446 Euclid St., Kansas City, Mo., shopping center, incl. offices and parking area, $500,000.

Mo., St. Louis County—ABBEY—Order of Poor Clares, Rev. Mother Mary Stella, abbess, Evansville, Ind., abbey, incl. chapel, dormitories, 15 acre tract on Telegraph Rd., ½ mi. west of Christopher Dr. $500,000.

▲ **N. J., Gibbsboro**—RESIDENTIAL DEVELOPMENT—Hutton Hill Development Corp., c/o A. M. Greenfield & Co., Inc., 1325 Walnut St., Phila., Pa., 180 unit residential development, $3,000,000.

▲ **N. J., Jersey City**—HOSPITAL—Hebrew Home for Orphans and Aged of Hudson & Bergen Co., 198 Stevens Ave., Jersey City and Englewood Cliffs, plans by Joseph Blumenkrantz, 551 Fifth Ave., New York, N. Y., 100 bed hospital. $1,000,000.

▲ **N. J., Trenton**—CATHEDRAL—Diocese of Trenton, 153 N. Warren St., plans by Ricker & Axt, 6115 Hudson Ave., West New York, rebuilding St. Mary's Cathedral, Warren St., $2,000,000-$3,000,000.

▲ **N. Y., New York**—APARTMENT—Peter Feinberg, c/o H. I. Feldman, archt., 415 Lexington Ave., Zone 17, 15 story apartment, Horatio St. and 8th Ave. $1,250,000.

▲ **N. Y., New York**—APARTMENT—David Green, c/o Henry G. Greene, archt., 855 Sixth Ave., 20 story apartment with garage, 350 E. 52nd St., $2,000,000.

▲ **N. Y., New York**—APARTMENT—1270 Fifth Ave. Corp., 1790 Broadway, plans by H. Herbert Lilien, 201 W. 72 St., 14 story apartment, 1270-73 Fifth Ave., $2,800,000.

▲ **N. Y., New York**—LABORATORY—Rockefeller Institute for Medical Research, York Ave. and 66 St., plans by Harrison & Abramovitz, 630 Fifth Ave., Zone 20, laboratory, 1196 York Ave. $1,350,840. Praeger-Kavanagh, 126 E. 38 St., Zone 16, consult. engrs.

▲ **N. Y., Plattsburg**—SHOPPING CENTER—North Country Shopping Center, c/o A. H. Salkowitz, archt., 87-25 Homelawn St., Jamaica, Zone 32, will not construct shopping center on 665 acre tract on Rte. 9 to include 900 houses, garden apartments, office medical bldg. and recreation center, $20,000,000. Project abandoned. CD 1/17.

N. Y., Yonkers—APARTMENT—Sunset Green Housing Corp., c/o Middle Income Housing Corp., 60 E. 42 St., New York, Zone 17, plans by Kelly & Gruzen, 80 Fifth Ave., New York, Zone 3, 9 story co-operative apartment, 70 families, Hawthorne and Buena Vista Aves. $700,000.

▲ **O., Cincinnati**—SHOPPING CENTER—Shopping Centers, Inc., c/o P. Palazzolo, 2045 Gilbert Ave., will not construct shopping center, Paxton Rd. $5,000,000. Zone change denied. Project abandoned. Frankenberger-Junker & Lensky, 2910 Woodburn Ave., archts.-consult. engrs. CD 8/15.

O., Hamilton—CHURCH—St. Peter in Chains Catholic Church, Rev. Joseph S. Michalowski, pastor, Ridgelawn and Liberty Sts., church; school addns. $500,000.

O., Shaker Heights—OFFICE—Ohio Bell Telephone Co., 750 Huron Rd., Cleveland Zone 15, plans by Nicholas Zajack, Hippodrome Bldg., Cleveland, Zone 14, 8 story approx. 37,000 sq. ft. office, 20820 Kinsman Rd. $500,000.

▲ **O., Toledo**—FEDERAL OFFICE—General Services Admin., General Services Bldg., Wash. 25, D. C. federal office bldg. $4,950,000. No appropriation. Lease-purchase project.

▲ **O., Westlake**—DWELLINGS—Fodor Realty Co., 3308 Lorain Ave., Cleveland, Zone 13, 235 homes, Detroit Rd. near Bassett Rd. $5,000,000. Robert Krause, 21285 S. Park Dr., Cleveland, Zone 26, consult. engr.

▲ **Ore., Portland**—FEDERAL OFFICE—General Services Admin., General Services Bldg., Wash. 25, D. C., federal office. $5,092,500. No appropriation. Lease-purchase project. CD 11/19/45, under Public Buildings.

▲ **Pa., Cheltenham**—RESIDENCE DEVELOPMENT—Samuel Cohen, c/o McGroarty & Co., Inc., 8034 York Rd., Elkins Park, residential development, Church Rd. and Twp. line, $2,000,000.

Pa., Meadville—HOTEL—Meadville Community Hotel, Inc., Meadville, General David Meade Hotel, operated by Treadway Inns Corp., Boston, Mass. $600,000.

Pa., Phila.—APARTMENT—Philip Litman, 4959 Monument Rd., nine 4-unit apartment bldgs., City Line east of 71 St. $500,000.

▲ **Pa., Rosemont**—APARTMENT—Llandover Gardens, Inc., c/o Frank Glassman, 5000 Woodbine Ave., Phila., apartment, 380 units, Bryn Mawr Ave. and Llandover Rd. $2,500,000.

Pa., Sharon—POST OFFICE—Post Office Dept., Pennsylvania Ave. between 12 and 13 Sts. N. W., Wash., D. C., Sharon Post Office, Silver St. and Shenango Ave., $898,000. CD 12/5/49.

▲ **Tex., Aransas Pass**—TOURIST COURTS, etc.—Walter Carrington & Harold Legge, Littlefield Bldg., Austin, luxury tourist courts, $350,000; 385 dwellings, $5,000,000. 131 acres site at Mustang Island.

▲ **Tex., Corpus Christi**—HOSPITAL—Sisters of Charity of the Incarnate Word, 2930 S. Alameda St., Spohn Hospital addn. $2,250,000.

▲ **Tex., Ft. Worth**—MOTEL, etc.—R. E. Dumas Milner, 3691 Canton Rd., Jackson, Miss., motel $350,000, commercial bldg. $1,000,000, shopping center $2,000,000, office $2,000,000, tract off Camp Bowie Blvd.; expansion hotel LaSalle, $750,000.

▲ **Tex., Houston**—CHURCH—First Christian Church, 1503 Main St., plans by Hamilton Brown, 2017 W. Gray St., church, $1,100,000. Walter P. Moore, 2 Pinedale St. and I. A. Naman & Assocs., 3305 Montrose St., consult. engrs. CD 4/5.

▲ **Wis., Whitefish Bay**—SCHOOL—Dominican High School Corp., 120 E. Silver Spring Dr., plans by Grelinger & Rose, 757 N. Broadway, Milwaukee, Sinsinawa Community High School, $3,500,000. CD 12/31/52.

▲ **B. C., Vancouver**—OFFICE—B. C. Engineering Co. Ltd., Dunsmuir and Seymour Sts., plans by Townley & Matheson, 1376 Hornby St., 5 story addn. to 2 story, rein.-conc. office bldg. $1,000,000.

Ont., Toronto—COMMERCIAL—F. T. Burgess Estate, c/o J. E. Hoare, Jr., archt., 481 Eglinton Ave., W., 1 story, 100x100 ft. commercial bldg., Yonge St. and Greenville St., three stores, rein.-conc. fdn. and main floor struc. steel and steel joists frame, masonry walls, parking at rear, $750,000. Alex. Tobias & Assoc. Ltd., 24 Cecil St., consult. engrs.

▲ **Ont., Toronto**—SHOPPING CENTER—Principal Investments Ltd., 133 Richmond St. W., New York Type shopping center, Woodbine and Sheppard Aves., 60 acre site, $10,000,000. Town Planning Consultants Ltd., 614 Church St., consult. engrs.

Que., Baie Comeau—APARTMENTS—Canadian British Aluminum Co. Ltd., 1980 Sherbrooke St. W., Montreal, three apartments and 18 housing units, $500,000. CD 12/6, under Industrial Buildings.

Que., Montreal—SCHOOL—Montreal Catholic School Comm., 117 St. Catherine St. W., plans by Gaetan LeBorgne, 48 classroom school for english speaking students, Papineau, Saurial & Sauve Sts. $500,000.

▲ **Que., Montreal**—HOUSING—Saraguay Properties Co., c/o Thibodeau & Thibodeau, archts., 940 Cote de Liesse Rd., housing program, 43 custom built homes at Sunrise Cres., Saraguay, $1,500,000. C. E. Gravel, 3717 Levesque Blvd., L'Abord a Plouffe, consult. engr.

Que., Quebec City—CONSTRUCTION CENTER—LeCentre de la Constr. de Quebec, Inc., c/o Andre Gilbert, archt., 915 St. Cyrille St., and Paul Rousseau, assoc. archt., 915 St. Cyrille St., constr. centre on blvd. Hamel, bldg. 560x500x37 on 400x1000 ft. lot to contain exhibition hall, dining hall, show rooms and offices to serve as exhibition centre for industry, $500,000.

INDUSTRIAL BUILDINGS

▲ **Fla., Tampa**—BREWERY—Joseph Schlitz Brewing Co., 235 W. Galena St., Milwaukee, Wis., brewery on 55-acre track at Old Henderson Air Field, $18,000,000.

▲ **O., Lorain**—PLANT—National Gypsum Co., 325 Delaware Ave., Buffalo, N. Y., plant for production of gypsum wall board, $6,000,000.

Pa., Fort Washington—LABORATORY, etc.—American Cyanamid, 30 Rockefeller Plaza, New York, N. Y., plans by Liebenberg & Kaplan, engrs.-archt., 51 S. 13 St., Minneapolis, Minn., 60,000 sq. ft. office, laboratory warehouse, and distribution center, $500,000. Bids about Nov. 15.

▲ **Tex., Freeport**—MINING PLANT—Freeport Sulphur Co., Freeport, design and install sulphur mining plant, $1,000,000. CD 12/18/52.

▲ **Va., Roanoke**—TEST CENTER—Thompson Products, Inc., 23555 Euclid St., Cleveland, O. Test center near here to test fuel and auxiliary power sys. for rockets and missiles, $10,000,000.

Wis., La Crosse—PLANT—Trane Co., 206 Cameron Ave., plans by Shubert, Sorensen & Assocs., 308 Hoeschler Bldg., 68,800 sq. ft. (1st unit) of aluminum production plant, $600,000.

UNCLASSIFIED

▲ **Calif., Redding**—OFF-STREET PARKING—City, City Hall, off-street parking, structures at 4 locations, $1,165,650. Richard P. Graves & Assoc., Bank of America Bldg., Oakland, consult. engrs.

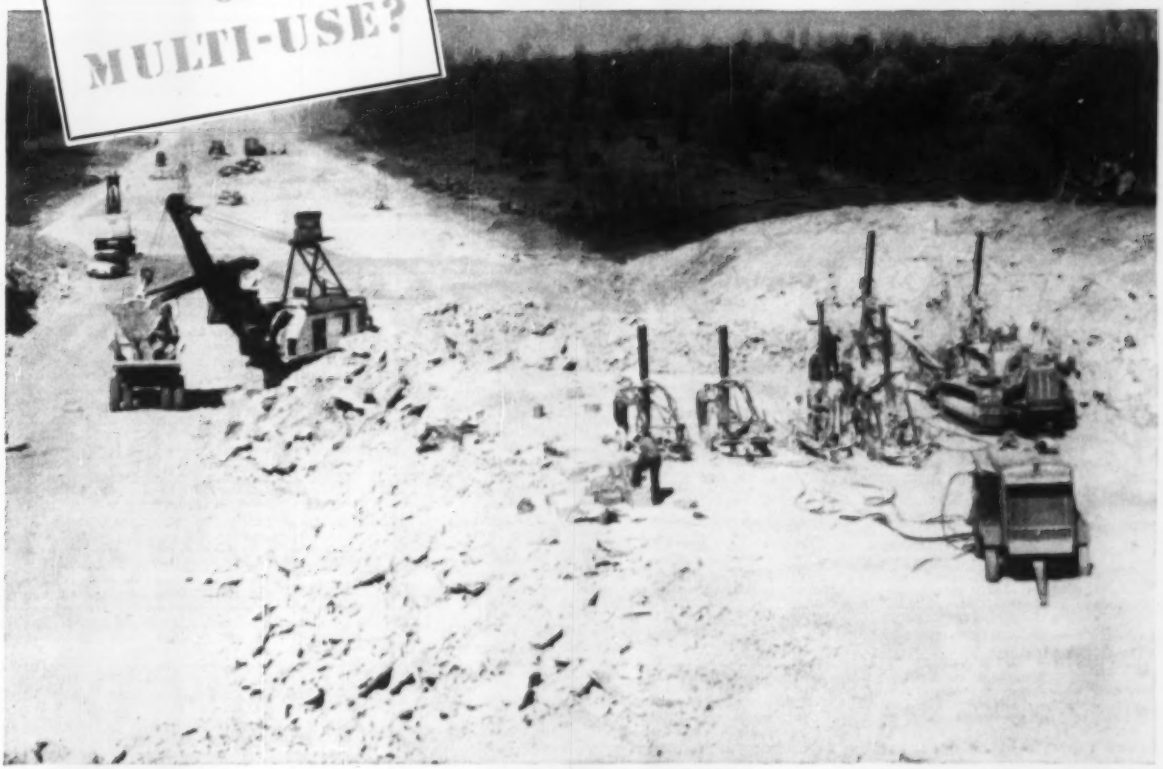
▲ **Texas**—COMPRESSOR UNITS—Permain Basin Pipe Line Co., 2223 Dodge St., Omaha, Neb. and Andrews, Tex. five 735 h.p. compressor units, Andrews Co. $1,276,000.

Tex., San Antonio—GARDEN CENTER, etc.—City, City Hall, making Mahncke Park into garden center, recreation and playgrounds, comfort stations, $500,000. CD 12/20/51.

Wash., Tacoma—STADIUM—School Bd., S. 8th and Tacoma St., bond election Nov. 6, remodel stadium, high school, $850,000. CD 8/19/49.

CARBIDE INSERT? or MULTI-USE?

Porter-DeWitt puts Missouri Highway 66 through faster, cheaper by using both bit types



LOCATION: Highway 66, Laclede-Pulaski Counties, Missouri. **OPERATING CONDITIONS:** Conglomerate of Dolomite, Sand and Chert.

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NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
October 29 Connecticut
STREETS AND ROADS
October 23 Massachusetts October 29 Connecticut

▲† **Mass., Chicopee Falls**—DORMITORIES—BA 11/8—U. S. Engr., 150 Causeway St., Boston, airmen's dormitories, Westover Air Force Base, ENG-19-016-57-81. $1,000,000-$1,200,000. Plans deposit $35. CD 10/8.

BUILDINGS—BA

Mass., Medford—DORMITORY—BA 10/25—Tufts University, Bouve Boston School, Medford (selected list bidders) 3 story dormitory. $700,000. Plans deposit $50. Arland A. Dirlam, 739 Boylston St., Boston, archt. CD 2/20.

Mass., Northampton—DORMITORY—BA 10/26—Clark School for the Deaf, 46 Round Hill St., (selected list bidders), dormitory. $650,000. James A. Britton, 215 Federal St., Greenfield, archt. CD 6/20.

▲ **Conn., Bridgeport**—DORMITORIES, etc.—BA 10/30—University of Bridgeport, 200 Park Pl., two 4 story women's dormitories and dining hall. $1,230,000. CD 6/5.

▲ **Conn., Wilton**—SCHOOL—BA 11/13—Town, Town Hall, Wilton, Senior High School addn. $1,900,000. Sherwood, Mills & Smith, 65 Broad St., Stamford, archts. CD 8/8.

▲ **Mass., Boston**—HOUSING—BA On Or About 11/13—U. S. Eng., 150 Causeway St., Boston, Zone 14, construct and finance Capehart family housing and off-site imprvs., utilities, Boston Defense Area at Swansea, Rehoboth, Topsfield, Beverly, Randolph, Bedford and Hull, ENG-19-016-57-32, $1,000,000.

▲ **R. I., Providence**—COLLEGE OF EDUCATION—BA 11/15—State of R. I. & Providence Plants., State House, Bld 394 to 401. Proj. Rice-23, College of Education Bldg. and Henry Barnard Laboratory, Mount Pleasant Ave. next to Triggs Memorial Park. $3,500,000. Plans deposit $150. Howe, Prout & Ekman, 17 Custom House St., archts. CD 11/19/54.

▲ **Mass., Boston**—HOUSING—BA On Or About 11/16—U. S. Eng., 150 Causeway St., Boston, Zone 14, construct and finance Capehart family housing and off-site imprvs., utilities for Boston Defense Area at Rehoboth, Hull, Swansea, Topsfield, Beverly, Randolph and Bedford, ENG-19-016-57-32, $1,000,000.

▲ **Conn., Bridgeport**—OFFICE—Bids Asked—Southern New England Telephone Co., 227 Church St., New Haven, (selected list of bidders), 7 story office. $3,000,000. Hubbard, Lawless & Blakeley, 110 Whitney Ave., New Haven, consult. engrs. Henry A. Pfisterer, 111 Whitney Ave., New Haven, engr. Harold H. Davis, 29 Whitney Ave., New Haven, archt. CD 6/19.

HEAVY CONSTRUCTION—LB & CA

† **Davison Constr. Co., Inc.**, at 306A Elm St., Manchester, N. H., LB $922,000, est. $1,004,600, hangar motor service shop, warehouse, paint, oil and dope storage bldg., for Air National Guard, Grenier Air Force Base, ENG-19-016-57-44, MANCHESTER, N. H. U. S. Eng., 150 Causeway St., Boston, 14, Mass. Whitman & Howard, Inc., 89 Broad St., Boston, Mass., and Koehler & Isaak, 922 Elm St., Manchester, N. H., engrs.-archts. Bids Sept. 27. CD 8/24.

Tornabene Bros. Co., 170 Needham St., Newton Upper Falls, Mass. LB $673,000, est. $700,000. bathhouse, swimming pool, 70 Tappan St., BROOKLINE, MASS. Town, Bldg. Comm., John M. Hall, chn., Bd. Selectmen, Town Hall, Brookline, Mass. Bids Oct. 5. CD 9/11.

▲ **Phoenix Bridge Co.**, Phoenixville, Pa., LB $1,653,000. Total est. $10,000,000. (4 bidders) superstructure of Founders Bridge, Hartford-East Hartford, over Connecticut River, HARTFORD, CONN. Hartford Bridge Auth., 284 Sheldon St., Hartford, Conn. Bids Oct. 3.

BUILDINGS—LB & CA

John Zandonella, Inc., 70 Chase St., Bridgeport, Conn., LB $836,000. 3 story, 64 bed HOSPITAL unit, kitchen, dining room, heating plants and elevators, BRIDGEPORT, CONN. Park City Hospital, 695 Park Ave., Bridgeport, Conn. Bids Oct. 1. CD 9/26.

▲ **E. & F. Constr. Co.**, 94 Wells St., Bridgeport, Conn., CA, $1,000,000. ACADEMY for high school girls, Cherry Hill, HAMDEN, CONN. Missionary Zelatrices of the Sacred Heart, Benham St., Hamden, Conn. Awarded Oct. 4. CD 6/25.

Arthur Deacon & Son, Bantam Rd., Litchfield, Conn., CA Est. Approx. $700,000. 4 cottage-type DORMITORIES, 2 TRADE SHOPS and CLASSROOMS, LITCHFIELD, CONN. Connecticut Junior Republic, Goshen Rd., Litchfield, Conn. Awarded Oct. 4. Marcel Breuer, 201 E. 57 St., New York, N. Y., archt. Thos. Babbitt, West St., Litchfield, Conn., engr. CD 5/18.

▲ **Bank Building & Equipment Corp.**, 342 Madison Ave., New York, N. Y., CA, Est. over $1,000,000. redesigning and modernizing main OFFICE BLDG., NEW HAVEN, CONN. Second National Bank, 135 Church St., New Haven, Conn. W. G. Knoebel, 906 Sidney St., St. Louis, Mo., archt. Awarded Oct. 4.

▲ **Gilbane Building Co.**, 90 Calverley St., Providence, R. I., LB Est. $2,500,000. air-conditioned OFFICE, STAMFORD, CONN. Dorr-Oliver, Inc., Barry Pl., Stamford, Conn. CD 7/16.

▲ **A. F. Peaslee, Inc.**, 15 Lewis St., Hartford, Conn. LB $1,075,680. (5 bidders) Richmond Lane Elementary SCHOOL, WEST HARTFORD, CONN. Town, Edmund H. Thorne, Supt. Schools, 51 Memorial Rd., West Hartford, Conn. Bids Oct. 10. CD 10/1.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
October 23 Maryland October 24 New York

BUILDINGS—BA

N. Y., Apalachin—SCHOOL—BA 10/25—Central School Dist. No. 1, Apalachin Elementary School, $870,000. Extended date. Fudge & Underhill, 105 W. Church St., Elmira, archts. CD 10/4.

▲ **D. C., Wash.**—HOUSING—BA 10/31—National Capital Housing Auth., 1729 New York Ave., DC-1-15, Parkside Addition, incl. 42 housing units, Anacostia Ave. between Grant and Hayes Sts. N.E. Extended date. Plans deposit $30. LeRoy Brown, 1832 N. Capitol St., archt.

HEAVY CONSTRUCTION—LB & CA

Stormont Constr. Co. Ltd., Cornwall, Ont., Canada, CA $844,384. Schedule No. 8, comprising of Schedules 1, 3 and 5, reservoir clearing between Waddington and Barnhart Island Power Plant, Contr. No. 31, NEW YORK. The Power Authority of the State of New York, 270 Broadway, New York, N. Y. CD 9/28, under LB.

NEW YORK—John W. Johnson, state supt., Dpt. P. Wks., The Gov. Alfred E. Smith State Office Bldg., Albany.

Horn Constr. Co., Inc., 2174 Hewlett Ave., Merrick, N. Y. CA $689,994. (3 bidders) constr. grade crossing elimination structure and approaches to carry 0.22 mi. sect of Rte. 110 under Main line branch of Long Island R.R. near East Farmingdale, in Suffolk Co. CD 9/18, under LB.

▲† **Arundel Corp.**, foot of Fulton St., Brooklyn, N. Y. LB $1,675,920 (2 bidders) dredging, rock removal to depth of 37 ft. below mean low water involving removal approx. 108,500 cu. yd. place, measurement, ledge rock, 51,600 cu. yd. place measurement of material other than ledge rock from New York and New Jersey Channels, Sect. 4, Rock Area 12, CIVENG-30-075-57-27, NEW YORK. U. S. Eng., 111 E. 16 St., New York 3, N. Y. Bids Oct. 9. CD 9/25.

▲ **General Electric Co.**, 1 River Rd., Schenectady, N. Y. CA $2,462,933. furnishing, installing main power equip. for Third Avenue sub-station, N. Y. City Transit System, Contr. P-172, BROOKLYN, N. Y. New York City Transit Auth., 370 Jay St., Brooklyn, N. Y. CD 9/17, under LB.

▲ **McLean-Grove Co., Inc.**, 400 Madison Ave., New York 17, N. Y. and **George M. Brewster & Son, Inc.**, 275 W. Fort Lee Rd., Bogota, N. J. (joint venture) CA $11,771,580 (7 bidders) Contr. 453, constr. portion of West Delaware Tunnel of Delaware Sys., incl. approx. 26,000 lin. ft. tunnel, incl. Shaft 4, approx. 380 ft. deep town of Colchester, Delaware Co. and town of Rockland, Sullivan Co., NEW YORK, N. Y. Bd. Water Supply, 120 Wall St., New York, N. Y. CD 9/27, under LB.

BUILDINGS—LB & CA

▲ **Humphreys & Harding**, 420 Lexington Ave., New York 17, N. Y. CA Est. $1,000,000. 1 story soft drink bottling PLANT, 9701-9827 Ave. D, BROOKLYN, N. Y. Metropolitan Bottling Co., 3 W. 57 St., New York 19, N. Y. CD 6/19.

Milan Development Corp., 26 Court St., Brooklyn 2, N. Y. Owner Builds. $783,700. 6 story APARTMENT and GARAGE, 3502-18 Snyder Ave., BROOKLYN, N. Y. CD 5/17.

▲ **Owner**, c/o Henry A. Klar Realty Co., 220-03 Horace Harding Blvd., Bayside Hills, N. Y. Owner Builds. $1,000,000. 60 HOUSES on tract at 144 Ave. and 225 St., LAURELTON, N. Y.

Laurelton Park Homes, c/o Butterly & Green Realty, 168-25 Hillside Ave., Jamaica, N. Y. Owner Builds. $935,000. 55 HOUSES on tract at 222 St. and 139 Ave., LAURELTON, N. Y.

▲ **Caristo Constr. Corp.**, 26 Court St., Brooklyn 2, N. Y. CA $3,160,000. (7 bidders) general constr. JUNIOR HIGH SCHOOL 45, Manhattan, 120 St. between First and Second Aves., NEW YORK, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. CD 8/31, under LB.

▲ **George A. Fuller Co.**, 597 Madison Ave., New York, N. Y. CA 28 story OFFICE, Fifth Ave., 56 St., NEW YORK, N. Y. Corning Glass Works, 718 Fifth Ave., New York 19, N. Y. CD 8/10.

▲ **Mars Associates & Normel Constr. Co.**, 132 Nassau St., New York 7, N. Y. CA $1,893,000. (2 bidders) general constr. PUBLIC SCHOOL 175, W. 134 and W. 135 Sts., between Lenox and 7th Aves., Manhattan Boro, NEW YORK, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. CD 8/29, under LB.

▲ **Psaty & Fuhrman, Inc.**, 369 Lexington Ave., New York 17, N. Y. CA $3,184,000. (7 bidders) general constr. JUNIOR HIGH SCHOOL 117, west side Second Ave. between E. 108 and E. 109 Sts., NEW YORK, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. CD 8/29, under LB.

▲ **Stone Ridge Park, Inc.**, Mountain Ave., New Providence, N. J., CA $3,000,000. 56 addnl. section HOMES, Stone Ridge Park (Mountain Ave.) NEW PROVIDENCE, N. J. Martin Lewy, 65 Clarendon Rd., Scarsdale, N. Y. Wm. Chirgotis, 968 Stuyvesant Ave., Union, N. J., archt.

▲ **Hillside Terrace Homes**, c/o A. H. Salkowitz, 87-25 Homelawn St., Jamaica 32, N. Y. Owner Builds. $1,200,000. 40 HOUSES on tract on Searington Rd., SEARINGTON, N. Y.

▲ **Honey Hills Homes**, c/o Herman H. York, archt., 90-04 161 St., Jamaica, N. Y. Owner Builds. $4,300,000. 271 HOUSES on tract at Veterans Hy. and Old Caleb Path, SMITHTOWN, N. Y.

▲ **Rosedale Estates**, c/o Lane Realty, 107-40 Queens Blvd., Forest Hills, N. Y. Owner Builds. $5,000,000 200 HOUSES on tract near Rosedale Ave. and West St., WHITE PLAINS, N. Y.

▲ **Peerless Homes, Inc.**, 5 Glenfair Rd., Fairlawn, N. J. Owner Builds. $5,000,000, 300 HOMES, Washington Valley Rd., Bridgewater Twp., BOUND BROOK, N. J. C. J. Kordys, 116 Passaic St., Passaic, N. J., archt.

Harbor Greens Homes, c/o Erwin Gerber, archt., 1180 Raymond Blvd., Newark, N. J. Owner Builds. $900-000. 40 HOUSES on tract at Half Mile Rd. and Harbor Green Circle, MIDDLETOWN, N. J. Erwin Gerber, 1180 Raymond Blvd., Newark, N. J., archt.

Milton Rothman & Leo Rokesch, Box 24, Middletown, N. J., Owner Builds, $800,000. 50 HOMES, to be known as Kings Point Homes, East Rd., MIDDLETOWN, N. J. Frank Amodio, 60 Broad St., Red Bank, N. J., archt.

George Constr. Co., 502 E. 32 St., Paterson, N. J., CA $575,000. 50 family APARTMENT, Park Ave. and E. 31 St., PATERSON, N. J. Brett, Wyckoff, Potter, Hamilton, Inc., 15 E. 42 St., New York, N. Y. George Miller, 125 W. 45 St., New York 36, N. Y., archt.

▲ **Michael Inganamort**, 14 Harrison St., Dumont, N. J. Owner Builds. $1,000,000. 50 HOUSES, new section of Ron Scherer Park, Forest and Wyckoff Aves., RAMSEY, N. J. Leonard G. Feinen, 320 Lincoln Ave., Hasbrouck Heights, N. J., archt.

▲ **Bergton & Capello**, 55 Cedar Lane, Teaneck, N. J., Owner Builds, $1,500,000. 30 new HOMES in Woodland Hills, RIVER VALE, N. J. Harsen & Johns, Railroad & Summit Ave., Tenafly, N. J., archts.

▲ **Beggs Brothers Co.**, 82 S. Van Buren St., Englewood, N. J., CA Est. $1,200,000. 1 story, 600,000 ft. coffee and tea processing PLANTS, Secaucus Rd., SECAUCUS, N. J. Eppens Smith Co., 51-12 21 St., Long Island City, N. Y. Jabez Burns & Sons, 11 Ave. and 43 St., New York, N. Y., engrs.

▲ **Briar Park Homes**, c/o Lane Realty, 107-40 Queens Blvd., Forest Hills, N. J. Owner Builds. $1,700,000. 64 HOUSES on tract at Briar Road, east of Passaic Ave., WEST CALDWELL, N. J.

Brusca Brothers, Inc., 5131 Cypress St., Pittsburgh 24, Pa. CA Est. $500,000. HOSPITAL addn., ST. MARYS, Pa. Andrew Kaul Memorial Hospital, St. Marys, Pa. Bids Aug. 30. CD 8/16.

Atlas Contractors of Md., Inc., 2926 E. Cold Spring Lane, Baltimore 14, Md. CA $517,977. Cylburn HOME for Children, 2201 Cold Spring Lane, BALTIMORE, MD. City, Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore 2, Md. CD 9/18, under LB.

John K. Ruff, Inc., 3010 Ridgewood Ave., Baltimore 15, Md. CA $864,644. Elmwood Elementary SCHOOL, Dale Ave., Fullerton, TOWSON, MD. Baltimore Co. Bd. Educ., Aigburth Rd., Towson, Md. CD 10/9, under LB.

▲ **Baltimore Co. Bd. Educ.**, Aigburth Rd., Towson, Md. rejected bids Sept. 18, 2 story, brick, concrete, steel Arbutus Junior High School, Arbutus, TOWSON, MD. LB $2,760,000. CD 9/21, under LB.

▲ **Columbia Hospital for Women**, 25 and "L" Sts. N.W., Wash., D. C., rejected bids Sept. 18, 5 story Columbia HOSPITAL for Women addn., WASH., D. C. LB $2,008,084. CD 9/20, under LB.

▲ **Estate of Rebecca Lipscomb**, c/o American Security & Trust Co., 15 and Pennsylvania Aves. N.W., Wash., D. C., rejected bids Aug. 23, OFFICE, SHOP, WAREHOUSE and PARKING GARAGE, 4 and Bryant Sts. N. E., WASH., D. C. LB $1,267,700, Alt. No. 1. LB $1,282,700. CD 8/28, under LB.

▲ **George A. Fuller**, 111 W. Washington St., Chicago, Ill., CA, $3,000,000. 8 story, limestone, marble and brick HEADQUARTERS BLDG. and GARAGE, WASH., D. C. International Bakers & Confectioners Union, 1145 19 St. N.W., Wash., D. C. Holabird & Root & Burgee, 180 N. Wabash Ave., Chicago, Ill., archts.

SOUTH

HEAVY CONSTRUCTION—LB & CA

STATE HIGHWAY LETTINGS
BRIDGES
October 24 Virginia November 8 Florida
STREETS AND ROADS
October 24, 31 Virginia October 26 Kentucky

BUILDINGS—SLC

▲ **S. C. Hartsville**—PLANT, etc.—Sonoco Products Co., Court St., Hartsville, soon lets contract, pulp plant and

(Continued on page 104)

4400 TONS

of structural steel fabricated by FORT PITT BRIDGE

for this section of the new Penn-Lincoln Parkway East

Here again, structural steel carefully fabricated by Fort Pitt Bridge contributed to important cost savings on a major highway project.

General Contractors for this section of Pittsburgh's Penn-Lincoln Parkway—a Pennsylvania Department of Highways project:

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Latrobe Road Construction, Inc., Latrobe, Pa.

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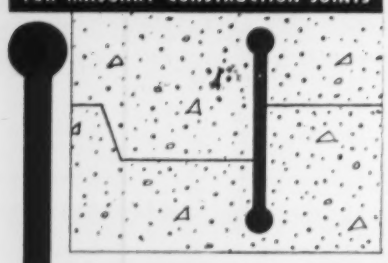
WATERSTOPS
FOR MASONRY CONSTRUCTION JOINTS



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Write for free descriptive Bulletins.
Also builders of coal and ore bridges and unloaders, and specially designed machinery.

McKIERNAN-TERRY CORP.
32 Mercer Street, Dover, N. J.

(Continued from page 102)

paper mill bldg. addn. Total est. $7,500,000. Roderick O'Donoghue & Co., 420 Lexington Ave., New York, N. Y., consult. engrs. CD 12/27.

HEAVY CONSTRUCTION—LB & CA

GEORGIA—State Hy. Dpt., No. 2 Capitol Sq., Atlanta, **Claussen-Lawrence Constr. Co.**, 1394 Gwinnett St., Augusta, Ga., CA $736,550, bridge and 1,368 mi. approaches SR 25, F-009-2 (11), Bryan and Chatham Counties. Bids Sept. 14. CD 9/19, under LB.

† **McDowell & McDowell**, 718 Murfreesboro Rd., Nashville, Tenn., LB $588,913, est. $595,553 (8 bidders) 1,076,000 cu. ft. excav. at Jackson Lock & Dam and access roads on Tombigbee River, Clarke Co., ALABAMA. U. S. Eng., 2301 Grant St., Mobile 7, Ala. Bids Oct. 9. CD 9/27.

KENTUCKY—Commonwealth of Ky., Dpt. Hys., Frankfort, **Wood & Bush**, 410 Ann St., Frankfort, Ky. CA $735,947 (3 bidders) b. conc. surf. Class I 2.252 mi. Morehead-Olive Hill Rd., F 13 (7), SP 22-148, Carter Co. CD 10/8, under LB.

▲ TENNESSEE—State Hy. Dpt., Nashville,
Tenn.—**H. W. Caldwell**, Ashland City, Tenn., LB $199,401, continuous I-beam bridge with concrete deck girder approach spans, grading, drainage, gravel chert or stone surfacing roadway approaches 1.501 mi. sect. Secondary Rte. 4330, Proj. S-4330 (4), Franklin Co.;
Tenn.—**Bethlehem Steel Co.**, Union Trust Bldg., Cincinnati, O., LB $4,344,044, co. steel superstructures for Tennessee River Bridge at Chattanooga, approx. 2,000 ft. west of existing Market St. Bridge on Urban Rte. 72, Proj. U-072-1-(5), Hamilton Co.;
Tenn.—**Norfleet & Lewis**, Clarksville, Tenn., LB $115,436, bridge, approaches at Little West Fork Creek on Secondary Rte. 6117, Proj. S-6117 (5), Montgomery Co.;
Tenn.—**Cecil Morgan**, Clarksville, Tenn., LB $262,330, two parallel concrete deck girder bridges and approaches over State Rte. 96, on interchange of State Rte. Nos. 96 and 100 at Fairview Proj. F-070-1-(3), Williamson Co. Bids Oct. 5. CD 9/17.

▲ TENNESSEE—State Hy. Dpt., Nashville,
Tenn.—**H. W. Caldwell**, Ashland City, Tenn., LB $71,197, crushed stone surfacing 3.281 mi. sect. Secondary Rte. 6275, Proj. No. S-6275 (1), Cheatham Co.;
Tenn.—**Oman Constr. Co.**, Acklen Park, Nashville, Tenn., LB $856,818, crushed stone and bit. materials paving, constr. concrete sidewalks, curbs and parking lanes, widen existing bridge over N. C. & St. L. R.R., constr. one new concrete deck girder bridge over Little Duck River 2.041 mi. sect. State Rte. 2 in Manchester, Proj. No. F-002-1-(6), Coffee Co.;
Tenn.—**Roadbuilders, Inc.**, 718 Murfreesboro Rd., Nashville, Tenn., LB $973,096, grading, widening two bridges, paving with crushed stone and bit. materials, constr. concrete sidewalks, curbs, parking lanes 4.166 mi. sect. State Rte. 6, Proj. No. F-006-3-(22) Pt. I, Davidson Co.;
Tenn.—**Burns & Baker**, Third Natl. Bank Bldg., Nashville, Tenn., LB $151,827, crushed stone surf., constr. one concrete box type bridge 3.853 mi. sect. Secondary Rte. No. 6236, Proj. S-6236 (2), Giles Co.;
Tenn.—**Pat H. Eatherly**, Carthage, Tenn., LB $138,363, crushed stone surf., constr. one box type bridge 3.133 mi. sect. Secondary Rte. 6311, Proj. No. S-6311 (1), Smith Co.;
Tenn.—**McDowell & McDowell**, 718 Murfreesboro Rd., Nashville, Tenn., LB $164,561, crushed stone surf., constr. two concrete deck girder bridges 4.73 mi. sect. Secondary Rte. 6286, Proj. No. S-6286 (2), Sumner Co. Bids Oct. 5. CD 9/17.

BUILDINGS—LB & CA

▲ **E. I. duPont de Nemours & Co.**, duPont and Nemours Bldg., Wilmington, Del. Own Forces. $3,000,000. orlon acrylic staple and tow PLANT, WAYNESBORO, VA. Completion late 1957.

▲ **Rust Eng. Co.**, 2109 5 Ave. N., 400 Exchange Bldg., Birmingham, Ala., CA, $1,038,400. POWER PLANT UNIT NO. 5, TALLAHASSEE, FLA. City, City Hall, Tallahassee, Fla. Bids Aug. 23. CD 9/10, under LB.

Jack A. Roberts, 420 12 St. S., Birmingham, Ala., CA, $553,000. STUDENT UNION BLDG., on new Howard Campus, Lakeshore Dr., Homewood, BIRMINGHAM, ALA. Howard College, 7725 2 Ave. S., Birmingham, Ala. Bids Sept. 25, awarded Oct. 6. CD 10/4, under LB.

▲ **N. C. Morgan Constr. Co.**, 1925 Queen City Ave., Tuscaloosa, Ala., LB $1,647,000 (1 bidder) construct and finance, 100 Capehart HOUSING UNITS, FORT McCLELLAN, ALA. U. S. Eng., 2301 Grant St., Mobile 7, Ala. Bids Oct. 9. CD 9/25.

▲ **Prichard & Co.**, 4625 Roanoke Rd., Kansas City, Mo. CA Est. $8,965,000. four COMPRESSOR STATIONS, 3,500 hp. each at Rapides Co., La.; Humphrey and Alcorn Counties, Miss. and Macon Co., Tenn.; two addns. to two existing STATIONS, 2,000 hp. and 3,500 hp. at Arcadia Co., La.; KENTUCKY, TENNESSEE, MISSISSIPPI and LOUISIANA. Gulf Interstate Gas Co., 1125 Brazos St., Houston, Tex. CD 11/16/50, under Mississippi and Alabama. CD 3/27/52, under Texas-Louisiana-Mississippi-Tennessee and Kentucky.

▲ **Base Procurement Office, England Air Force Base**, Alexandria, La., rejected bids Aug. 28, construct and finance 300 housing units, England Air Force Base, Bids 16-600-57-4, ALEXANDRIA, LA. LB $3,733,352. Will re-advertise. CD 9/5, under LB.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
October 24 Michigan
STREETS AND ROADS
October 24 Michigan

BUILDINGS—BA

▲ Ill., **Chicago**—HOUSING—BA 10/30—Chicago Housing Auth., 668 S. Dearborn St., 204 unit housing, Prairie Ave. courts ext., South Park Ave. and 26 St. $1,924,000. Nicol & Nicol, 23 E. Jackson Blvd., archts. CD 1/6.

O., **Perrysburg**—SCHOOL—BA 10/30—Bd. Educ., Perrysburg, elementary school; and physical education addn. to present high school. $800,000. CD 8/30.

O., **Holland**—SCHOOL—BA 11/1—Springfield Local School Dist., Holland, Holland School addn.; Dorr St. School addn.; Crissey School addn. $500,000. Plans deposit $30. McLaughlin & Keil, 500 Dominion Bldg., Lima, archts. CD 5/15.

O., **Oxford**—MESS HALL—BA 11/2—Ohio Dpt. P. Wks., 705 Ohio Dpts. Bldg., Columbus, Mess Hall No. 3, Miami University. $750,000. Plans deposit $20. Charles F. Cellarius, 111 E. 4 St., Cincinnati, archt. Fosdick & Hilmer, 1703 Fifth-Third Bank Bldg., Cincinnati, engrs.

▲ Ill., **Hillside**—SCHOOL—BA 11/13—Proviso Twp. High School Dist., 209, 807 S. 1st Ave., Maywood, Proviso West High School, Wolf Rd. between Roosevelt and Harrison St. $6,750,000. Perkins & Will, 309 W. Jackson Blvd., Chicago, archts. CD 11/16.

HEAVY CONSTRUCTION—LB & CA

▲ **American Constr. Co.**, 4100 Brookpark Rd., Cleveland 29, O. LB $1,146,503, est. $1,100,000 (2 bidders) imprv. Lakefront parking lots, CLEVELAND, O. City, Dpt. P. Safety, Robert J. Kelly, Comm. Traffic Eng. & Parking, City Hall, Cleveland 14, O. Bids Oct. 4. CD 9/28.

▲† **Maxon Constr. Co., Inc.**, 2600 Far Hills Ave., Dayton 9, O. CA $7,527,513. nuclear engineering test facility, engineering test reactor bldg.; light water moderate reactor capable of operation up to and incl. 10 thermal megwatts; guard house, water softening plant, site preparation, utilities, DAYTON, O. U. S. Eng., 850 W. Broadway, Louisville, Ky. Bids Sept. 25. CD 9/27, under LB.

Mosser Constr. Co., 122 S. Wilson Ave., Fremont, O. LB $700,000, est. $1,000,000. (5 bidders) water filtration plant at Mentor-on-the-Lake, MENTOR, O. Ohio Water Service Co., Struthers, O. Burgess & Niple, 2015 W. Fifth Ave., Columbus, O., engrs.

▲ **J. M. Corbett Co.**, 2500 S. Corbett St., Chicago, Ill. CA, $3,168,038. Calumet Seyway Toll Bridge 4-A-2, structures, except structural steel bridges over Elliott Ave., 83 Jeffrey Ave. and 85 and 86 Sts., drainage, paving, CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids Sept. 13. CD 9/18, under LB.

▲ **ILLINOIS**—State Div. Hys., Centennial Bldg., Springfield,
Ill.—**General Paving Co.**, 30 E. John St., Champaign, Ill. CA, $803,880. paving and ramps 1.19 mi. FAI Rt. 05, north of Champaign, Champaign Co.;
Ill.—**Triangle Constr. Co.**, 480 N. Evergreen St., Kankakee, Ill. CA, $690,110. paving 2.83 mi. FA Rte. 113 from U. S. 46 to Ill. Rt. 1, White and Gallatin Counties;
Ill.—**Jesse H. Freeman, Inc.**, Moline, Ill. CA, $517,304. c. conc. 7.79 mi. Ill. 105, Monticello to 1.5 mi. south of Bement, Piatt Co.;
Ill.—**McDougal-Hartman**, 1500 N. Asams St., Peoria, Ill. CA, $884,286. paving 5.31 mi. U. S. 24 from Banner N.E., Peoria and Fulton Counties. Grand total $2,895,580. Bids Sept. 28. CD 10/2, under LB.

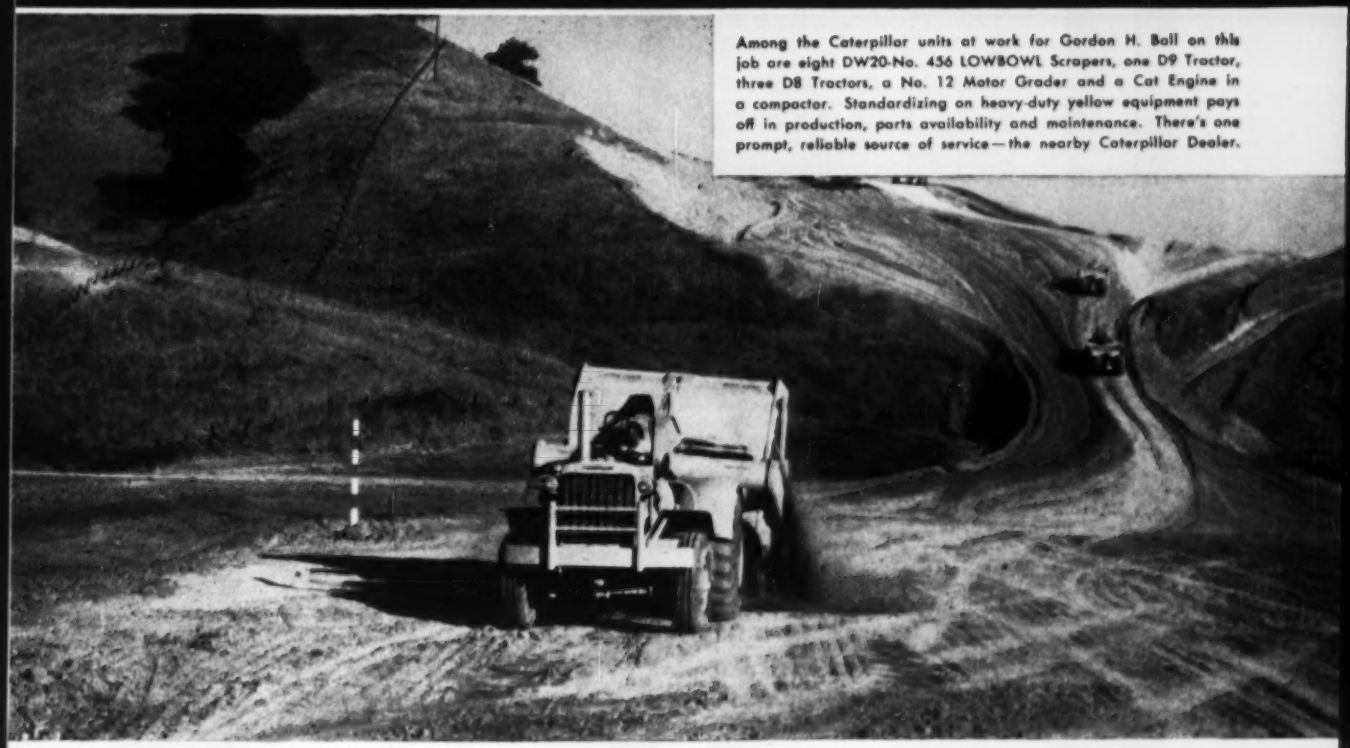
▲ **MICHIGAN**—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,
Mich.—**Louis Garavaglia**, 24240 Mound Rd., Center Line, Mich. and **Julius Porath & Son**, 432 Lafayette Bldg., Detroit, Mich. LB $2,191,924, est. $2,530,000. (12 bidders) dual 24 ft. c. conc. 2.189 mi., three bridges on Detroit-Toledo Expressway, 58151 C1-RN (SP 58-61) (I 05-1 2), Monroe Co.;
Mich.—**Halloway Constr. Co.**, Livonia, Mich. LB $1,474,000, est. $1,700,000. (17 bidders) dual 24 ft. c. conc., b. conc. 5.679 mi. on relocation of US-16, M 47064 C1-RN (SP 47-2), etc., Livingston and Oakland Counties;
Mich.—**Denton Constr. Co.**, 20415 Mack Ave., Grosse Pointe, Mich. LB $249,983, est. $270,000. (7 bidders) 44 ft. c. conc. 1.097 mi. on M-29 for north limits of St. Clair Shores to Shook Rd., SS 50071 C1-R (SP 50-51) (S 799 1), Macomb Co.;
Mich.—**Rieth-Riley Constr. Co.**, 837 Emmett St., Battle Creek, Mich. LB $468,894, est. $540,000. (16 bidders) 2 ft. wid'n., 24 ft. b. conc. wearing course 6.34 mi. US-27 from ½ mi. north of south limits of Marshall, M 13-72 C1-RN (SP 13-19), etc., Calhoun Co.; LB $299,878, est. $330,000 (10 bidders) dual c. conc., b. conc. 1.014 mi. on US-131 south to north limits of Schoolcraft, F 39011 C1-UN (39-1), F 164 12, Kalamazoo Co. Bids Oct. 3. CD 9/18 and 9/27.

Fairbanks-Morse & Co., 9655 East 8-Mile Rd., Detroit, Mich. CA $752,556. storm water pumps, Milk River Drain, DETROIT, MICH. Milk River Drain Drainage Bd., Christopher J. Mulle, chn., 3523 Cadillac Tower, Detroit, Mich. Bids Aug. 27. CD 7/30.

▲ **Greenfield Constr. Co., et al**, 16596 Greenfield St., Detroit 35, Mich. LB $1,681,749. Girard Drain, Harper

(Continued on page 106)

New CAT LOWBOWL Scrapers handle big production on California highway job*



Among the Caterpillar units at work for Gordon H. Ball on this job are eight DW20-No. 456 LOWBOWL Scrapers, one D9 Tractor, three D8 Tractors, a No. 12 Motor Grader and a Cat Engine in a compactor. Standardizing on heavy-duty yellow equipment pays off in production, parts availability and maintenance. There's one prompt, reliable source of service—the nearby Caterpillar Dealer.

Working on the construction of a 2.6-mile bypass near Lafayette, California, Gordon H. Ball has eight new four-wheel Cat DW20-No. 456 LOWBOWL Scrapers handling the job, estimated at 1,500,000 cu. yd. The material is sandstone clay. Mr. Ball, whose company has used Caterpillar equipment for 35 years, is more than satisfied with the production of the LOWBOWL units. They are moving about 10,000 cu. yd. in an eight-hour day.

On job after job, you hear similar reports about new Cat LOWBOWL Scrapers. When matched against competitive units under identical conditions, these rigs have delivered bigger, faster loads. Here's why: The No. 456's LOWBOWL design loads more material with less resistance clear to the end of the loading cycle for quicker heaped loads. And the DW20's new 300 HP (maximum output) Turbocharged 6-cylinder engine delivers 10% more rimpull and a top speed of 32.1. There's power aplenty for hauling heavy loads and for fast round trips, even against adverse grades. Another plus: New tubeless tires on scraper and drive wheels, available at no extra cost, eliminate an estimated 80% of down time caused by tires.

Besides the four-wheel DW20-No. 456, there's a two-wheel DW21-No. 470. Both LOWBOWL Scrapers are cable-operated and have a capacity of 25 cu. yd. heaped and 18 cu. yd. struck. Both are ruggedly built to move more earth faster at lower cost with less down time. For facts and figures about LOWBOWL superiority on actual jobs, see your Caterpillar Dealer. Name the date—he'll be glad to demonstrate!

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

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BIGGER, FASTER LOADS WITH CAT LOWBOWL SCRAPERS

(Continued from page 104)

Woods Section, DETROIT, MICH. Girard Drain Drainage Bd., Christopher J. Mulle, chn., 3523 Cadillac Tower, Detroit, Mich. Bids Oct. 5. CD 9/20;
Mancini Constr. Co., 5226 Nottingham St., Detroit, Mich. LB **$838,332**. Girard Drain, Grosse Pointe Woods Sect. (Detroit, Mich.).

▲ **S. A. Healy Co. & Gargaro Co.**, 6561 East Seven Mile Rd., Detroit, Mich. LB **$1,936,480**. Milk River Drain, Grosse Pointe Woods, DETROIT, MICH. Milk River Drain Drainage Bd., Christopher J. Mulle, chn., 3523 Cadillac Tower, Detroit, Mich. Bids Oct. 5. CD 9/21.

BUILDINGS—LB & CA

▲ **Charles Marotta**, 2509 Lee Rd., Cleveland 18, O. Own Forces. **$2,000,000**. 50 HOMES Letchworth Rd. to be known as Crestwood Park, BEACHWOOD, O. Thomas E. Caves, 4090 Eastway St., Cleveland 21, O., archt.

Glenroy Constr. Co., Inc., 450 S. Ritter Ave., Indianapolis, Ind., CA **$875,000**. 1 story 130x1,200 ft., masonry SHOPPING CENTER, INDIANAPOLIS, IND. Eagle Realty Corp., 1532 W. Washington St., Indianapolis, Ind. Philip C. Gardner, c/o contractor, consult. engr.

Freevol-Smedberg Co., 5807 W. Chicago Ave., Chicago, Ill. CA, **$500,000**. 2 story, brick, steel RESEARCH LABORATORY, 2728 Lake St., MELROSE PARK, ILL. Richardson Co., 2728 Lake St., Melrose Park, Ill. Rodde-Anderson-Novak, 6618 W. Diversey Ave., Chicago, Ill., archts.

▲ **Reniger Constr. Co.**, 127 N. Cedar St., Lansing, Mich. CA **$2,537,294**. SERVICE CENTER, LANSING, MICH. Consumers Power Co., 212 W. Michigan St., Jackson, Mich. Bids Sept. 19. CD 9/11.

▲ **Bruton Realty Co.**, 15100 Fenkell St., Detroit, Mich. Owner Builds. **$1,250,000**. 85 brick frame ranch HOMES, 13 Mile Rd., Montrose and Rochester Rds., ROYAL OAK, MICH.

▲ **Pontiac Shopping Center**, Telegraph Rd., Waterford, Mich. Owner Builds. **$4,000,000**. SHOPPING CENTER Elizabeth Lake and Telegraph Rds., WATERFORD, MICH. Charles N. Agree, Inc., 1140 Book Bldg., Detroit, Mich., archt. CD 11/4/53.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
October 25 Kansas
STREETS AND ROADS
October 25 Kansas

▲ **Texas-Louisiana**—BA 11/12—Comrs. Jefferson Co., Court House, Beaumont, Tex. and Cameron Parish, Cameron, La., constr. causeway across mouth Lake Sabine to connect Texas with Cameron Parish, La.; 3,800 ft. long, 24 ft. wide, 1,800 ft. over water Toll Bridge, near Port Arthur, Tex. $1,500,000. CD 10/11/55.

BUILDINGS—BA

Iowa, Creston—SCHOOL—BA 10/30—Bd. Educ., Creston, Junior High School, $500,000; Franklin School, $375,000. Williamson & Loebsack & Assoc., 1245 Topeka St., Topeka, Kan., archts. CD 8/24/55.

† **Ark., Blytheville**—INFIRMARY—BA 11/13—U. S. Eng., P.O. Box 867, Little Rock, infirmary bldg. and heating plant, Blytheville Air Force Base. $500,000-$1,000,000. CD 10/8.

▲† **N. M., Clovis**—DINING HALLS, etc.—BA About 11/15—U. S. Eng., P.O. Box 1538, Albuquerque, airmen dining halls and dormitories, Clovis Air Force Base, ENG-29-005-57-6. $1,000,000-$5,000,000. CD 8/27/56.

▲ **Tex., San Angelo**—HIGH SCHOOL—BA 12/4—San Angelo Independent School Dist., San Angelo, high school. $2,380,000. Plans deposit $50. Extended date. Caudill, Rowlett, Scott & Assocs., 425 S. Main St., Bryan, archts. CD 9/20.

BUILDINGS—SLC

▲ **Tex., Garland**—ENGINEERING CENTER, etc.—Temco Aircraft Corp., Garland, 9314 W. Jefferson St., Garland, soon lets contract engineering center, $1,000,000, warehousing,, $150,000; grading, earthwork, $45,000. CD 10/3.

HEAVY CONSTRUCTION—LB & CA

▲ **MINNESOTA**—State Hy. Dpt., 1246 University Ave., St. Paul,
Minn.—**Berghuis Constr. Co.**, Prinsburg, Minn. CA, **$880,590**. grav. sub-base grav. base road-mixed bit. base, 0.3 mi. northeast of Sauk Centre and 16.9 mi. between Sauk Centre and Long Prairie, Stearns and Todd Counties;
Minn.—**Barton Contg. Co.**, 3115 Hennepin Ave., Minneapolis, Minn. CA, **$543,840**. plant-mixed bit. surf. 11.5 mi. between Anoka and Elk River, Anoka and Sherburne Counties. CD 9/12, under LB.

▲ **MISSOURI**—State Hy. Dpt., Jefferson City,
Mo.—**J. A. Tobin Constr. Co.**, 3700 Rainbow Blvd., Kansas City, Kan. CA **$1,107,644**. graded earth, bridges, 24 ft. c. conc. 9.256 mi., Rte. 36, Proj. F 231 (12), Macon Co.; CA **$782,971**. graded earth, bridge, c. conc. 22 ft. 9.394 mi., Rte. 50, Proj. F 148 (3), Howell Co.;
Mo.—**Harrison Eng. & Constr. Co.**, 3706 Broadway, Kansas City, Mo. CA **$720,144**. graded earth, bridges 24 ft. c. conc. 6.083 mi., Rte. 60, Proj. F 178 (3), Stoddard Co.;
Mo.—**J. H. Hessefort**, Cole Camp, Mo. CA **$99,712**. graded earth, bridge grav. or crushed 5.804 mi., Rte. SCC, Proj. S 1541 (1), Monroe Co.;
Mo.—**Davis Constr. Co., Inc.**, Boonville, Mo. CA **$170,687**. graded earth, bridge, grav. 0.413 mi., Rte. SV, Proj. S 7060 (5), Ralls Co.; CA **$81,555**; graded earth, bridge, grav. 4.637 mi. Rte. SZ, Proj. S 1585, (1), Cooper Co.;
Mo.—**T & O Lime & Rock**, Sedalia, Mo. CA **$76,094**. graded earth, bridge grav. 7.426 mi., Rte. SZZ, Proj. S 1648 (1), Saline Co.;
Mo.—**Burk Constr. Co.**, E. Sunshine Rd., Springfield, Mo. CA **$75,278**. graded earth, bridges, grav. 7.223 mi., Rte. SO, Proj. S 1045 (3), Polk Co.;
Mo.—**Hedgpeth & Stewart**, Nixa, Mo. CA **$75,449**. graded earth, bridges grav. 8.29 mi. Rte. SFF, Proj. S 1614 (1), Webster Co. Grand total $3,189,532. Bids Aug. 30. CD 8/17, and 9/11, under LB.

Wade Lahar, Mountain Home, Ark., CA, **$678,000**, est. $600,000 land clearance 10,000 acres for Big Maumekke Dam and reservoir, near LITTLE ROCK, ARK. Little Rock Water Works System, City Hall, Little Rock, Ark. CD 1/12 under Water Supply.

Peter Kiewit Sons Co., 1024 Omaha Natl. Bank Bldg., Omaha, Neb. and **Foster-Smetana Constr. Co.**, 4360 Nicholas St., Omaha, Neb., CA, **$885,000**, constr. concourse between coliseum and grand stand, dormitories, grandstand, imprvs., OMAHA, NEB. Ak-Sar-Ben Field, Omaha, Neb. L. A. Daly Co., Insurance Bldg., Omaha, Neb., archt. Bids Sept. 21.

† **Rob. E. McKee General Contractor, Inc.**, Box 562, El Paso, Tex. LB **$503,400**, est. $585,000. horizontal test facility, Holloman Air Force Base, ENG-29-005-57-28, ALAMOGORDO, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Sept. 28. CD 9/20.

BUILDINGS—LB & CA

▲ **D'Arcy Leck Constr. Co.**, 2838 Stevens Ave., Minneapolis, Minn. LB **$1,102,270**. (6 bidders) general constr. 3 story, JUNIOR HIGH SCHOOL, Fourth Ave. S. between 71 and 73 Sts., RICHFIELD (P. O. MINNEAPOLIS), MINN. Bd. Educ., G. Ahlquist, clk., Richfield, Minn. Bids Oct. 4. CD 8/28.

Hagan Co., 1011 Grandview St., Sioux City, Iowa, CA, **$668,600**. plumbing and heating work, Burge HALL, University of Iowa, IOWA CITY, IOWA. State Bd. Regents, State Office Bldg., Des Moines, Iowa. Bids Aug. 23. CD 9/7, under LB.

▲ **W. A. Klinger Co.**, 2015 7 St., Sioux City, Iowa, CA **$3,067,000**. general contract Burge HALL, University of Iowa, IOWA CITY, IOWA. Bd. Regents, State Office Bldg., Des Moines, Iowa. Bids Aug. 23. CD 9/7, under LB.

▲ **H. S. Holtze Constr. Co.**, 2121 4 St., Sioux City, Iowa, CA **$1,142,001**. 98,000 sq. ft. MENTAL HEALTH INSTITUTION BLDGS. addns., MOUNT PLEASANT, IOWA. Mental Health Institute, Mount Pleasant, Iowa. Bids Sept. 20. CD 8/29.

▲ **Marshall Constr. Co.**, 4009 Center St., Houston, Tex. CA **$1,246,500**, SCHOOL, DEER PARK, TEX. Deer Park Independent School Dist., Deer Park, Tex. Bids Sept. 19. CD 8/31.

▲ **The Austin Co.**, 16112 Euclid St., Cleveland, O. CA **$7,000,000**. asbestos cement mfg. PLANT, CA **$250,000**, STORAGE or WAREHOUSING, DENISON, TEX. Johns-Manville Corp., 22 E. 40 St., New York, N. Y. CD 8/31.

Farnsworth & Chambers Co., Inc., 3018 Leeland St., Houston, Tex. LB **$878,000**, CHURCH and roof garden addn., HOUSTON, TEX. First Baptist Church, 1020 Lamar St., Houston, Tex. Bids Sept. 12. CD 8/30.

▲ **Joe Joeris**, 219 Avenue "A", San Antonio, Tex., CA **$2,159,600**. Highlands JUNIOR-SENIOR HIGH SCHOOL, SAN ANTONIO, TEX. San Antonio Independent School Dist., Lavaca and Matagorda Sts., San Antonio, Tex. Bids Oct. 4. CD 10/9, under LB.

McClellan Constr. Co., Box 448, Waco, Tex., CA **$736,000**. Base Bid "C", SHOPPING CENTER, WACO, TEX. Westview Village, Inc., and R. E. Cox Co., Waco, Tex. Bids Sept. 20. CD 9/11.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
November 7 California
STREETS AND ROADS
November 7, 8 California

† **Calif., Victorville**—DORMITORIES—BA 11/1—U. S. Eng., 751 S. Figueroa St., Los Angeles, airmen's dormitories, George Air Force Base, ENG-04-353-57-28. $750,000. CD 8/27.

▲† **Arizona and Utah**—Bids After 11/15—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., Colorado River Bridge, Glen Canyon Dam, Middle River Division, Colorado River Storage Proj., bridge across Colorado River in Navajo Indian Reservation in Coconino Co., 30 ft. roadway, 1,028 ft. span and deck will be approx. 700 ft. above river surface. CD 4/27/56, under Colorado, New Mexico, Utah and Wyoming.

▲† **Washington**—BA 12/18—U. S. Eng., City-County Airport, Walla Walla, South shore constr. Ice Harbor Lock & Dam, Snake River, Walla Walla and Franklin Counties, CIVENG-45-164-57-16. Plans deposit $200. Extended date. CD 9/28.

BUILDINGS—BA

▲ **Wash., Spokane**—OFFICE, etc.—BA 10/30—Washington Water Power Co., W. 825 Trent St., Spokane, 5 story 100,000 sq. ft. office and 15,000 sq. ft. cafeteria, masonry constr. $1,000,000. K. W. Brooks & Associate, B. Walker, W. 707 S St., Spokane, archts.

▲ **Calif., San Francisco**—SCHOOL—BA 10/31—City and San Francisco Co., Dpt. P. Wks., City Hall, Silver Avenue Junior High School, Silver and Thomas Aves., $1,923,000. Plans deposit $300 for composite general contract, complete; $100 for (b) general contract only; $100 for (1) plumbing and mechanical work; $100 for (2) electrical work. Alec. L. Wilson, 315 Montgomery St., archt. CD 11/4/54.

HEAVY CONSTRUCTION—LB & CA

▲† **Mountain States Constr. Co.**, 9200 W. West Colfax St., Denver, Colo., CA, **$2,452,340**. right diversion tunnel, Glen Canyon Dam, Middle River Div., Colorado River Storage Proj., Colorado River on Lees Ferry, DC-4747, ARIZONA and UTAH. Bureau Reclamation, Dpt. Interior, Kanab, Utah. Bids Sept. 11. CD 9/17, under LB.

▲† **Cawdrey & Vemo**, 3601 Fremont Ave., Seattle 3, Wash., LB **$1,706,533** (3 bidders) Phase II preflight facilities, incl. entensive expansion of utilities, 18,000 sq. ft. steel frame building, widen. parking apron, etc., RENTON, WASH. Boeing Airplane Co., 7755 E. Marginal Way, Seattle 4, Wash. Bids Sept. 27. CD 9/12.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento,
Calif.—**Mercer, Fraser Co., Inc. & Mercer, Fraser Gas Co.**, 2 and Commercial Sts., Eureka, Calif., LB **$392,052** (2 bidders) repairing embankments and installing bank protection, drainage facilities, 9.5 mi. U.S. 101 between Miranda and 1.1 mi. north of Robinson Ferry Bridge on US 299 at Mad River Bridge on Sign Rte. 36 between 2.3 mi. and 3.8 mi. east of Van Duzen River Bridge and on Sign Rte. 1 between Ferndale and Eel River, Humboldt Co.; LB **$569,725** (4 bidders) repairing storm damage at 33 locations on U.S. 101 Mendocino and Humboldt Counties;
Calif.—**Antioch Paving Co., Inc.**, P. O. Box 640, Antioch, Calif., LB **$86,751** (6 bidders) grading, surf. 6.5 mi., drainage facilities on north approach road, Contra Costa Co.;
Calif.—**Harms Bros.**, 5261 Stockton Blvd., Sacramento, Calif., LB **$153,818** (2 bidders) truck turnout lanes at 8 locations on Hy. 50, El Dorado Co.;
Calif.—**Stewart & Nuss Inc.**, 410 Thorne Ave., Fresno, Calif., LB **$203,883** (9 bidders) grading, surf. 3.4 mi. FAS Co. Rte. 1198, Fresno Co. Bids Oct. 3. CD 9/7.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento,
Madonna Constr. Co., P. O. Box 910, San Luis Obispo, Calif., LB **$3,346,749**, est. $3,810,500. grading, surf. 5.1 mi. 4-lane divided freeway on new alignment on U. S. 101 between 1.3 mi. south of Paso Robles and 1 mi. north of Paso Robles and 2.2 mi. 2-lane highway on new alignment on Sign Rte. 41 between U. S. 101 in Paso Robles and Huer Huero Creek and 2 overheads, overcrossing and bridge, San Luis Obispo Co. Bids Oct. 10. CD 9/7.

CALIFORNIA—State Div. Hys., 1120 N St., Sacramento,
Harms Brothers, 5261 Stockton Blvd., Sacramento, Calif., CA **$822,597**, grading, surf., 6.5 mi. Sign Rte. 140, 2 rein.-con. slab bridges between Bear Creek and Yosemite National Park, Mariposa Co. Bids Sept. 19, awarded Oct. 8. CD 9/26, nuder LB.

CALIFORNIA—State Div. Hys., 1120 N St., Sacramento,
Frederickson & Watson Constr. Co., 873 81 Ave., Oakland, Calif., CA **$873,081**. grading, surf. 2.2 mi freeway on Sign Rte. 4, and constr. 5 bridges, Santa Clara Co. Bids Sept. 26. CD 10/2, under LB.

▲ **Fred J. Early Constr. Co.**, 369 Pine St., San Francisco, Calif., CA **$1,394,495**. sewers, drainage system in 2,300 acre area south of here, incl. property for future subdivision development, SACRAMENTO, CALIF. Meadowview Assessment Dist., c/o County Engr., County Administration Bldg., Sacramento, Calif. Awarded Oct. 8. CD 10/8, under LB.

W. D. Foot, P. O. Box 358, San Gabriel, Calif., CA, **$535,000** est. $500,000-$600,000. 7 mg. First St. plant reservoir and pumping plant, Section 2 and 3, SANTA ANA, CALIF. City, City Hall, 3 and Main Sts., Santa Ana, Calif. Bids Sept. 24. CD 9/21.

BUILDINGS—LB & CA

Leavitt, Chandler & Co., Bellevue, Wash., LB **$738,000** (4 bidders) general contract, Highland JUNIOR HIGH SCHOOL, BELLEVUE, WASH. School Dist., 405, Bellevue, Wash. Bids Oct. 4. CD 9/19.

G. Kirkebo & Son, 1410 Mountain View Dr., Tacoma, Wash., CA **$684,760**. three wood, steel frame, 67,800 sq. ft. JUNIOR HIGH SCHOOL buildings, TACOMA, WASH. Clover Park School Dist. 400, 5214 Steilacoom Blvd., Tacoma, Wash. Bids Oct. 5. CD 10/10, under LB.

Crown Constr. Co., 5059 W. Pico Blvd., Los Angeles, Calif., CA, **$944,514**, est. $842,000. Azusa HIGH SCHOOL, second increment, AZUSA, CALIF. Citrus Union High School Dist., 18824 E. Foothill Blvd., Azusa, Calif. Bids Aug. 31. CD 9/28, under LB.

▲ **Stone & Schulte Realtors**, 1745 W. San Carlos St., San Jose, Calif. Own Forces. **$7,000,000**. 350 RESIDENCES, first unit of Tilden Park Estates near BERKELEY, CALIF.

▲ **L. E. Dixon Co.**, 409 S. California St., San Gabriel, Calif., CA. $1,000,000. masonry OFFICE BLDG., BEVERLY HILLS, CALIF. Southland Federal Savings & Loan Assn., 9412 Wilshire Blvd., Beverly Hills, Calif. CD 4/26.

Howard J. White, Inc., 870 Charlestone Rd., Palo Alto, Calif., CA, $749,037. Eisenhower Elementary and Garden Gate Elementary SCHOOLS, CUPERTINO, CALIF. Cupertino Union Elementary School Dist., P. O. Box 155, Cupertino, Calif. Awarded Oct. 1. CD 9/27, under LB.

Muskogee Development Co., 16119½ Sherman Way, Van Nuys, Calif., Owner Builds. $627,000. 57 DWELLINGS, N. Raysack, N. Gingham Aves., LANCASTER, CALIF.

McDonald Brothers, 2639 S. La Cienega St., Los Angeles 34, Calif., LB $982,310, (7 bidders) East Valley District HEADQUARTERS, San Fernando, LOS ANGELES, CALIF. Los Angeles Dpt. Water & Power, 311 S. Spring St., Los Angeles, Calif. Bids Sept. 28.

▲ **Herrick Iron Works**, 18 and Campbell Sts., Oakland, Calif., Owner Builds. $1,000,000. 1 story, 130,000 sq. ft., structural steel frame, structural steel fabrication PLANT, near MOUNT EDEN, CALIF. W. C. Rowley, c/o owner, engr.

† **Stolte, Inc.**, 8451 San Leandro St., Oakland, Calif., CA, $739,891. ADMINISTRATION BLDG., TOOL HOUSE, STOREHOUSE, utilities, SHOPS, railroad spur, etc. ENG-57-9, Oakland Army Terminal, OAKLAND, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Awarded Oct. 1. CD 10/3, under LB.

Barney Wilkerson, 6918 Brockton Ave., Riverside, Calif., LB $916,443 (2 bidders) CLASSROOM BLDGS. and DORMITORIES, California School for the Deaf and addnl mech. facilities, RIVERSIDE, CALIF. State Div. Architecture, 1100 S. Grand Ave., Los Angeles, Calif. Bids Oct. 3. CD 9/5.

▲ **Williams & Burrows, Inc.**, 500 Harbor Blvd., Belmont, Calif., LB $4,559,800 Base Bid, (5 bidders) 7 story, Santa Clara COUNTY HOSPITAL addn, SANTA CLARA, CALIF. Santa Clara Co., Court House, Santa Clara, Calif. George Washington, 204 Sacramento St., San Francisco, Calif., struct. engrs. Buonaccorsi & Murray, 350 Mission St., San Francisco, Calif., elec. engrs. CD 3/14.

▲ **Johnson, Drake & Piper, Inc.**, 9009 San Leandro St., Oakland, Calif., LB $3,743,700 (5 bidders) general contract, four 3 story CELL BLOCK UNITS, California State Prison, SOLEDAD, CALIF. State Div. Architecture, 1120 N. St., Sacramento, Calif. Bids Oct. 9. CD 9/4.

Collins Electrical Co., Inc., 611 W. Fremont St., Stockton, Calif., LB $528,528 (3 bidders) electrical work (Soledad, Calif.).

S. Glen Hickman & Hickman Bros., Inc., 3170 E. 11 St., Los Angeles, Calif., LB $1,224,300. (3 bidders) mechanical work (Soledad, Calif.); received no bids Oct. 9 for complete work (Soledad, Calif.).

Greenwood Homes, 920 E. Arquez, Sunnyvale, Calif., Owner Builds. $725,000. 100-unit APARTMENT with swimming pool, SUNNYVALE, CALIF. CD 8/2.

Donald F. Shaw, 1901 Blake St., Los Angeles, Calif., CA, $700,000. MACHINE SHOP and OFFICE, 3201 Lomita Blvd., TORRANCE, CALIF. Vickers, Inc., 2160 E. Imperial Hy., El Segundo, Calif.

MacLeod Constr. Co., 1538 San Nichols St., Ventura, Calif., LB $777,900, est. $720,000 (6 bidders) 5 story, 39,200 sq. ft., COUNTY COURT HOUSE and OFFICE addn., VENTURA, CALIF. Ventura Co. Bd. Supervs., Court House, Ventura, Calif. Bids Oct. 2. CD 9/21.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
October 24 British Columbia

HEAVY CONSTRUCTION—LB & CA

W. C. Wells Constr. Co. Ltd., 10519 115 St., Edmonton, Alta., CA, $588,385. 5,000x150 ft. runway, North Battleford Airport, NORTH BATTLEFORD, SASK. Dpt. Transport, Hunter Bldg., Ottawa, Ont. Awarded Oct. 3. CD 9/5, under LB.

LATIN AMERICA

HEAVY CONSTRUCTION—LB & CA

▲ **Ingenieros Scannone & Garcia Galindo, S. A.**, Edificio Radio Continente, Piso 4, Avenida Mexico, Caracas, D. F., Venezuela. LB $1,366,447, constr. 6 mi. lined canal and related installations at intake towers of Guarico Dam, VENEZUELA. Ministry of Agriculture & Livestock, Caracas, Venezuela.

U. S. POSSESSIONS

BUILDINGS—LB & CA

▲ **Pacific Constr. Co. Ltd.**, Honolulu, T.H., LB $3,662,691 (3 bidders) (on site), construct and finance 164 units (Capehart) HOUSING, 44 bldgs., 1 and 2 story, rein.-con. masonry constr., Tripler Army HOSPITAL, OAHU, T.H. U. S. Eng., P.O. Box 2240, Honolulu 4, T.H. Benedict, Beckler & Assocs., 252 S. Oxford Ave., Los Angeles, Calif., and Indenco Engineers, Inc., 960 98th Ave., Oakland, Calif., engrs.-archts.

(Proposal Advertisement see pp. 120 to 122)

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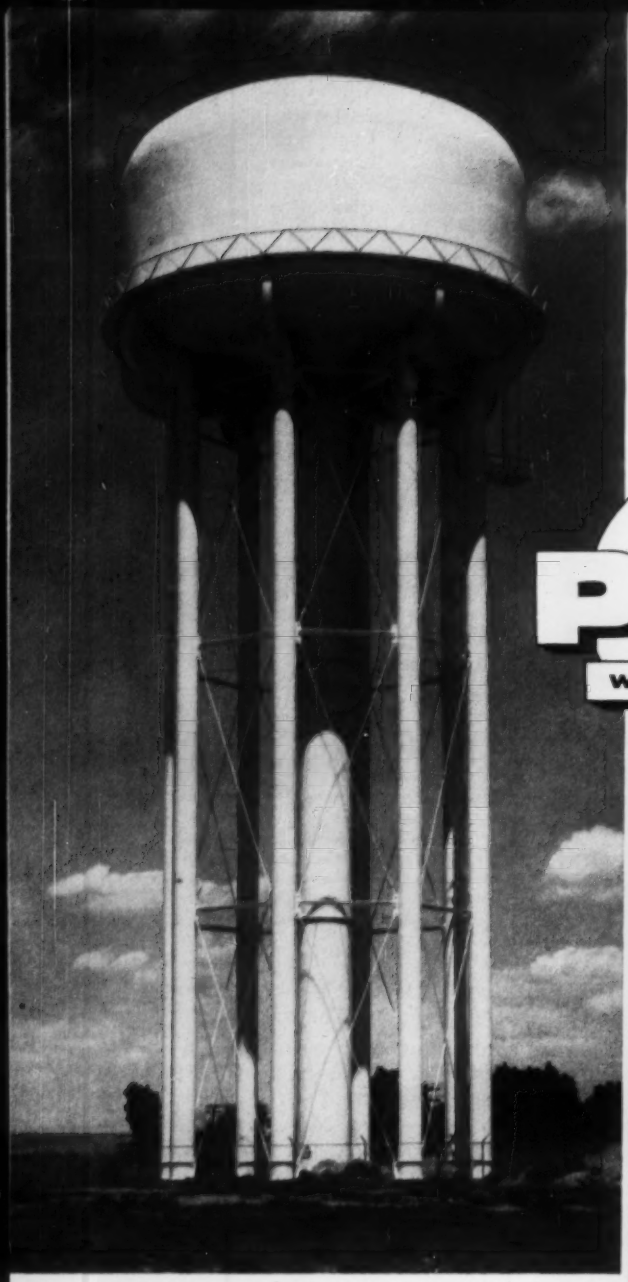

750,000 gallons capacity. Tank diameter 62 ft. Head range 35 ft. Height to bottom 120 ft.

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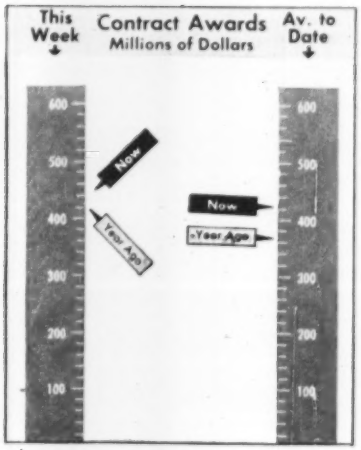
DALLAS (1) . . 1219 Praetorian Bldg.
SEATTLE . . . . . 522 Lane Street
SANTA CLARA, CAL. 621 Alviso Road
MADRID, SPAIN . Diego DeLeon, 60

Construction Scoreboard

Activity this Week



AMOUNT OF CONTRACTS LET

By Ownership	This Week	Cum. 42 wks 1956	Chge %
	$ millions		
Federal	$23.4	$1,418.6	+21
State and Municipal	157.8	5,361.0	+23
Total Public	181.2	6,779.6	+18
Total Private	265.4	11,055.9	+15
U. S. Total	$446.6	$17,835.5	+16
By Type of Work			
Waterworks	$16.4	$295.5	+33
Sewerage	12.3	493.1	+50
Bridges	14.1	509.0	+28
Highways	65.3	2,026.1	+13
Earthwork, Waterways	5.3	626.4	+40
Buildings:			
Public, Excl. Housg.	41.1	1,681.0	+18
Public Housing	6.0	281.9	+26
Private Housing	74.2	4,536.5	−13
Commercial	40.4	1,560.2	+14
Industrial	55.5	4,333.9	+87
Unclassified	116.0	1,491.9	−10
U. S. Total	$446.6	$17,835.5	+16

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

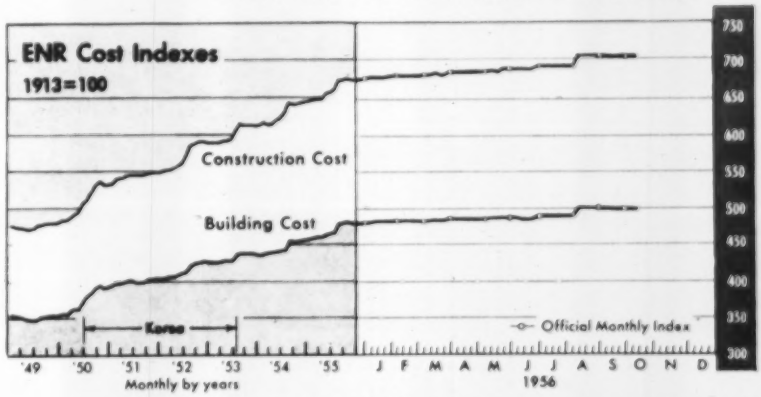
NEW CAPITAL FOR CONSTRUCTION

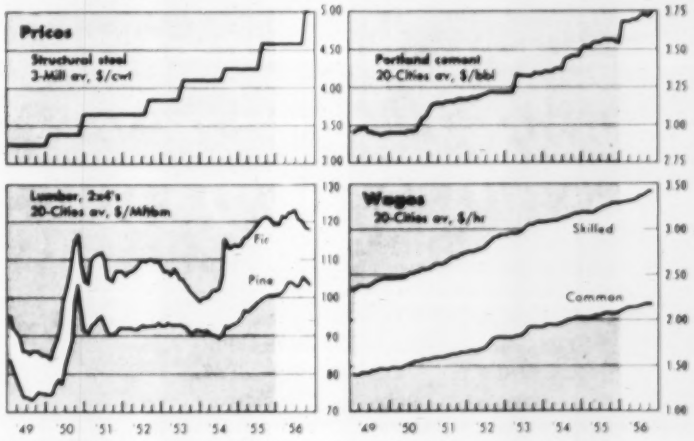
	Week of Oct. 11	Cum. 41 wks 1956	Chge '55-'56 %
	$ millions		
Corporate Securities	$78.6	$3,946.7	+40
State and Municipal:			
All Except Housing	127.8	3,591.8	+10
Housing	...	42.3	−41
Federal Loans	...	132.8	+21
Federal Aid	...	1,070.0	+25
Total Nonfederal	$206.4	$8,783.6	+23
Federal Appropriations:			
In U. S.	$...	$3,460.3	+2
Outside U. S.	...	15.9	−81
Total New Capital	$206.4	$12,259.8	+16

Cost Indexes as of Now

ENR INDEXES (1913 = 100), 20-cities' average	Week of Oct. 11 1956	% Change from Sept. 13 1956	% Change from Oct. 13 1955
Construction Cost	704.28	+0.03	+4.5
Building Cost	500.01	+0.1	+4.2

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
To convert above indexes to 1949 = 100: Divide Construction Cost by 1.770; Building Cost by 3.518.





ENR COST INDEXES IN 22 CITIES, 1913 = 100

City	Construction Cost 1956	Construction Cost Percent Change from last Month	Construction Cost Percent Change from last Year	Building Cost 1956	Building Cost Percent Change from last Month	Building Cost Percent Change from last Year
Atlanta	522	0	+5.5	$441	0	+5.3
Baltimore	602	+0.2	+1.1	$498	+0.2	+5.6
Birmingham	557	0	+7.2	$458	+0.5	+3.8
Boston	744	−0.2	+5.1	506	−0.4	+4.2
Chicago	792	0	+3.8	507	0	+4.1
Cincinnati	715	−0.3	+6.3	491	−0.4	+5.1
Cleveland	824	−0.3	+4.9	512	−0.4	+4.8
Dallas	534	0	+5.5	$446	0	+5.7
Denver	680	0	+3.7	503	0	+3.8
Detroit	808	−0.2	+4.1	527	−0.3	+4.7
Kansas City	716	−0.8	+1.9	503	−1.1	+1.5
Los Angeles	734	−0.3	+2.8	496	−0.3	+2.3
Minneapolis	757	0	+5.2	526	0	+4.8
New Orleans	565	−0.3	+3.6	460	−0.4	+2.3
New York	845	−0.2	+6.4	571	−0.4	+4.2
Philadelphia	747	+0.1	+3.7	549	+0.2	+2.6
Pittsburgh	727	0	+4.6	533	+0.6	+5.3
St. Louis	761	0	+4.2	527	0	+4.5
San Francisco	724	−0.4	+4.8	484	+0.03	+3.0
Seattle	724	0	+5.3	452	0	+4.9
U. S. 20 Cities' avg.	704	−0.1	+4.5	500	−0.1	+4.1
Montreal	563	+0.6	+4.3	$440	+0.8	+4.8
Toronto	592	0	+10.0	465	0	+7.0

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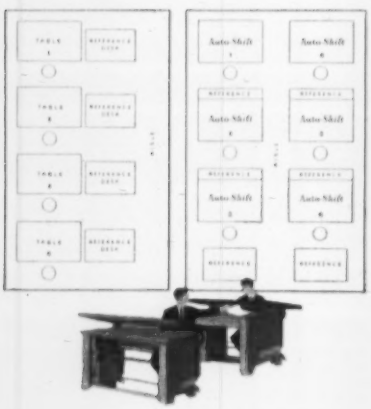
You can enlarge your engineering department in two different ways. With time-consuming, costly new construction, averaging $25-per-square-foot or $1500-per-draftsman. Or, by installing Auto-Shift drafting tables that put *more draftsmen* to work, *more productively*, in your existing space. Installed in rows, Auto-Shifts provide reference and storage space directly *behind* each draftsman (see diagram). Each 250 square feet accommodates *two more* Auto-Shifts than conventional tables and desks.

What's more, the man at the Auto-Shift gets *more work* done. Two finger-tip controls adjust board height and slope so easily that working position can be frequently changed, fatigue avoided. In installation after installation, Auto-Shift users report that increased quantity and quality of work quickly repay initial cost. Why not get all the interesting facts about Auto-Shift tables. Simply write Auto-Shift, Hamilton Manufacturing Company, Two Rivers, Wisconsin.



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Architect-Engineers Make Gains in '55

Architect-engineer firms signed up nearly $6 billion worth of new business in 1955. The number of such firms in the heavy construction field was up 6%, while the dollar volume of new business soared 64% over 1954.

These are key points in the latest annual ENGINEERING NEWS-RECORD and CONSTRUCTION DAILY analysis of architect-engineers' new business.

Last year 496 architect-engineer firms were commissioned to design a total of 2,572 heavy construction projects with a total dollar value of $5,993,700,000. (The survey covers only those firms starting new projects reported in ENR and CD adding up to $100,000 or more.)

The 64% jump in total dollar value of new business signed up by architect-engineer firms came on top of a sharp rise of 49% in 1954.

The 2,572 heavy construction projects signed up last year represented a 7% increase over 1954.

Large projects apparently played a big role in swelling the 1955 dollar volume. The average size of the project signed up in 1954 was $1,522,000. Last year, the average per project was $2,330,000—an increase of 53%.

The "million dollar" firms—architect-engineers who signed up a total of $1 million or more in new business during the year—dominated the show in 1955.

The dollar volume of work handled by the million-dollar group soared 64%, to a total of $5.9 billion. This represented nearly 99% of the value of all projects taken on by firms in the $100,000-and-up bracket.

Even though the total dollar volume of smaller firms represented only a small percentage of the 1955 market, there were substantial increases in the number of these smaller firms. And they had more work in 1955 than in the previous year.

There was a 1954-to-1955 increase of 26% in the number of architect-engineer firms that handled between $500,000 and $1 million in new business. The dollar value of this business rose 33% to $46.5 million.

Firms whose new business during 1955 totaled $100,000 to $500,000 increased 8%, while their dollar volume moved up 5%, to $22.1 million.

One of the major points in the

Architect-Engineer New Business in 1955 — By Type of Work

As reported by ENGINEERING NEWS-RECORD and CONSTRUCTION DAILY

496 Architect-Engineer firms signed up 2,572 new projects estimated to cost $5,994 million

Type of Work	All Architect-Engineers: Number of Firms	All Architect-Engineers: Number of Projects	All Architect-Engineers: $ Volume Millions	$1,000,000 or More: Number of Firms	$1,000,000 or More: Number of Projects	$1,000,000 or More: $ Volume Millions	Total 1955 Volume of All Types — $500,000-$1,000,000: Number of Firms	$500,000-$1,000,000: Number of Projects	$500,000-$1,000,000: $ Volume Millions	$100,000-$500,000: Number of Firms	$100,000-$500,000: Number of Projects	$100,000-$500,000: $ Volume Millions
Other Than Building												
Waterworks	55	120	$65.6	44	105	$63.3	4	7	$1.1	7	8	$1.2
Sewerage	67	141	104.7	56	115	100.6	3	12	2.5	8	14	1.6
Bridges	29	38	148.6	25	34	148.2	1	1	0.1	3	3	0.3
Highways	54	66	428.2	50	62	427.8	1	1	0.1	3	3	0.3
Earthwork, irrig., drainage	37	39	1,817.4	30	27	1,816.5	4	5	0.3	3	7	0.6
Airports	123	263	297.8	104	236	291.3	7	12	3.0	12	15	3.5
Unclassified	116	190	249.7	100	166	245.2	8	16	3.6	8	8	0.9
Total	...	857	3,112.0	...	745	3,029.9	...	54	10.7	...	58	8.4
Building												
Industrial	194	391	741.0	146	317	724.8	26	48	10.4	22	26	5.8
Mass housing, commercial and public buildings	361	1,324	2,140.7	294	1,245	2,107.5	44	55	25.4	23	24	7.8
Total	...	1,715	2,881.7	...	1,562	2,832.3	...	103	35.8	...	50	13.6
Federal (Incl. in above)	177	357	446.0	146	309	434.4	12	24	6.0	19	24	5.6
All Heavy Construction	496	2,572	5,993.7	357	2,307	5,925.2	68	157	46.5	71	108	22.0

How Architect-Engineer New Business in '55 Compared with '54

6% more firms took on new work. They had 7% more projects for 64% more $ volume

Type of Work	All Architect-Engineers: Per Cent Change '54-'55 Number of Firms	All Architect-Engineers: Number of Projects	All Architect-Engineers: $ Volume Millions	$1,000,000 or More: Per Cent Change '54-'55 Number of Firms	$1,000,000 or More: Number of Projects	$1,000,000 or More: $ Volume Millions	Total Volume of All Types — $500,000-$1,000,000: Per Cent Change '54-'55 Number of Firms	$500,000-$1,000,000: Number of Projects	$500,000-$1,000,000: $ Volume Millions	$100,000-$500,000: Per Cent Change '54-'55 Number of Firms	$100,000-$500,000: Number of Projects	$100,000-$500,000: $ Volume Millions
Other Than Building												
Waterworks	−20	+26	+132	−25	+25	+137	+33	+75	+79	0	+14	+20
Sewerage	+3	+16	+214	−3	+6	+213	+200	+500	+152	+17	+56	+47
Bridges	+45	+81	+94	+25	+62	+94	*	*	*	*	*	*
Highways	+20	−6	−51	+16	0	−51	0	0	0	+200	+200	+200
Earthwork, irrig., drainage	+16	−2	+990	+11	−23	+991	+100	+150	+200	0	+133	+545
Airports	+34	+21	+13	+30	+17	+12	+250	+500	+79	+20	0	+36
Unclassified	+10	+18	+26	+14	+21	+26	0	+33	+38	−11	−33	−41
Total	...	+19	+90	...	+14	+91	...	+135	+105	...	+23	+30
Building												
Industrial	+15	+18	+67	+7	+9	+66	+86	+200	+113	+22	+18	+59
Mass housing, commercial and public buildings	−3	−2	+35	0	−1	+36	−2	−8	+2	−30	−37	−27
Total	...	+2	+42	...	+1	+43	...	+36	+21	...	−17	−6
Federal (Incl. in above)	+58	+31	+20	+49	+28	+19	+9	+100	+32	+90	+26	+69
All Heavy Construction	+6	+7	+64	+2	+5	+64	+26	+59	+33	+8	+1	+5

* None in 1954

architect-engineer field in 1955 was the switch away from highway work into other types of heavy construction.

A phenomenal 990% jump in new earthwork-irrigation-drainage work, plus some substantial increases in other types of heavy construction has more than offset the sharp drop in highway design jobs.

Most of the decline in highway work was due to the drop in new tollroad projects.

(This survey will be supplemented in a later issue by an analysis of new business of architectural firms, which may include some building work which is not shown in the accompanying tabulation.)

Metal Building Companies Form New Trade Association

Thirteen companies have organized the Metal Building Manufacturers' Assn.

Members of the group produce predesigned metal buildings and components for commercial, industrial and institutional use.

Principal officers of the new organization include: W. B. Larkin, of Butler Manufacturing Co., chairman of the board; D. H. Malcolm, of Armco Drainage & Metal Products Co., vice-chairman.

Charter members of the association are: Armco Drainage & Metal Products Co., Middletown, Ohio; Behlen Manufacturing Co., Columbus, Neb.; Butler Manufacturing Co., Kansas City, Mo.; Carew Steel Co., York, Pa.; Cowin & Co., Inc., Minneapolis, Minn.; Inland Steel Products, Milwaukee, Wis.; Martin Steel Buildings, Inc., Mansfield, Ohio; Metallic Building Co., Houston, Texas; Pasco Steel Corp., Pomona, Calif.; Soule Steel Co., San Francisco, Calif.; Steelcraft Manufacturing Co., Rossmoyne, Ohio; Stran-Steel Corp., Detroit, and Wonder Building Corporation of America, Chicago.

Kentucky Pike Toll Receipts Aren't Coming in Fast Enough

Tolls on the Kentucky Turnpike have been coming in at a rate less than what is necessary to pay off the bonds issued for its construction.

The payment schedule for the bonds calls for revenues of approximately $25,000 a week. During the first two weeks in September the income from tolls was approximately $10,000 short of the necessary amount.

Officials expressed concern over the turnpike's operational deficit when expected traffic increases during the State Fair did not materialize.

Shopping Centers Reach Peak

September, October and November of this year may go into the record books as the golden months for the big regional shopping centers.

Seventeen of these big shopping centers—totaling more than 12 million sq ft of store and shop area—are opening in this three-month period. The total area of the 17 centers is greater than the total of all such regional centers built prior to September of this year.

These are key findings of a study prepared by economist Homer Hoyt for the Urban Land Institute, an independent research organization in urban, planning and development.

Hoyt concentrated on shopping centers that range in size from 400,000 sq ft to 1 million sq ft. All feature a department store as an integral part of the development.

Ideal centers of this type, according to Hoyt, contain two major department stores located at opposite ends of a mall, with an unbroken line of apparel and fashion goods stores—and no intervening streets.

He also believes that in the ideal center the department stores should not account for more than 50% of the total store area. Otherwise they overshadow or dwarf smaller stores.

The need for these big regional shopping centers is disappearing in some areas, according to Hoyt. For the most part, a slowdown in such construction probably will come in areas such as Long Island, N. Y.; Bergen County, N. J.; Detroit; the Chicago metropolitan area; and Milwaukee.

Some other metropolitan areas may be approaching the "saturation" point for big regional shopping centers.

• **Land costs up**—Further expansion of the regional shopping centers probably will be curtailed at least in part because of rapidly-rising land costs, Hoyt concludes.

He points out that developers built early shopping centers on land that cost from $100 to $2,000 an acre, as many owners failed to realize the full commercial possibilities of their holdings. Now, similar land is priced from $10,000 to $50,000 an acre.

Have suburban shopping centers hurt the downtown areas of the cities? Realtors and businessmen have argued both sides of this question for the past three years or more. But business trends have been inconclusive.

Now, Hoyt says, the impact of these new centers on sales in the central business districts is starting to be noticed.

(B&F continued on page 114)

Where Shopping Centers Open . . .

. . . during September - October - November, 1956

In these areas	These centers	Built around these department stores . . .	Have a total area of this much (sq ft)	Of which department stores account for this %
Detroit	Eastland	J. L. Hudson	1,000,000	50
Long Island (New York)	Roosevelt Field	Macy	1,000,000	34
Valley Stream L. I. (New York)	Green Acres	Gimbels	1,000,000	20
Hicksville, L. I. (New York)	Mid-Island Plaza	Gertz	1,000,000	33
N. W. of Chicago	Old Orchard	Marshall Field The Fair	1,000,000	44
Los Angeles	Broadway-Anaheim	Broadway	750,000	29
Houston	Gulfgate	Joske	800,000	25
Milwaukee	Capitol Court	Schuster	700,000	36
Minneapolis	Southdale	Dayton Donaldson	800,000	40
Indianapolis	Eastgate	Wasson	500,000	20
Miami	163rd St. International Center	Burdine's Richards	525,000	42
Cincinnati	Swifton	Rollman	500,000	25
Denver	Lakeside	Denver Dry Goods	450,000	28
Fairfax County, Va. (Washington D. C.)	7 Corners	Woodward & Lothrop Garfinckel	420,000	48
Baltimore	East Point	Hochschild Kohn Hutzler	350,000	46
San Francisco	Plaza	Macy	700,000	49
Baltimore	Mondawmin	Sears Roebuck	562,000	29
		Total	12,057,000	35

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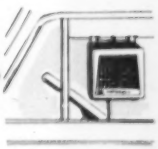

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Urban Renewal Under Fire

Special study group calls for some administrative changes; says Baltimore fails to keep pace with rate of deterioration

Slums are developing in Baltimore faster than the city can clear them under its present urban renewal program, a group of municipal experts said last week.

The Urban Renewal Study Board, appointed by Mayor Thomas D'Alesandro in February, sharply criticized some aspects of the present program.

In its report, the group said:

- Baltimore's clearance and redevelopment program is administratively bogged down and is too small.
- Code enforcement never has been adequately tied in to other renewal activities; has overemphasized areas requiring clearance and neglected others.
- Public housing has progressed but has participated directly in the urban renewal program only through its relocation service.
- City planning has failed to keep pace with development of renewal concepts.
- "Other essential activities, including rehabilitation, neighborhood organization, coordination of capital expenditures and realistic neighborhood planning have scarcely been undertaken."

• Rebuilding a city—Few cities in the United States have set the same goal that the Urban Renewal Study Board envisages for Baltimore. Spelling this out, the experts said:

"Baltimore's goal should be the elimination of its present slums and blighted areas within 20 years. Such a program will require a three-fold increase in present renewal activities. It will require the clearance of about 65,000 substandard dwellings. An additional 80,000 dwellings will require conservation, rehabilitation or code enforcement. In all, 45% of Baltimore's dwellings must be cleared or improved within 20 years."

To finance this program, the group estimated that the city would have to spend $300 million over the next 20 years, with an additional $600 million to be supplied by the federal government. Private outlays, of course, would run far more than the combined city-federal grants.

Arguing against a "bits and pieces" urban renewal program, the study group offered an eleven-point program that would tie all existing agencies—and some new ones—into one big plan.

• Reorganization steps—The "immediate 11-point program of action" would:

- Establish a new Renewal and Housing Agency, responsible for planning and executing the central functions of urban renewal. These include: neighborhood and project planning in renewal areas; land acquisition and clearance; area code enforcement activities; public housing; relocation of displaced families; rehabilitation and conservation activities; enlistment of private participation in renewal and service for neighborhood and community groups. This new body would replace the present separate Housing Authority and Redevelopment Commission.
- Appoint an assistant to the Mayor who would advise him on programing and supervision of all public works planning and development, the capital budget, city planning, urban renewal, industrial and commercial development and similar activities.
- Reorganize the City Planning Commission and the Department of Planning to make them an integral part of the mayor's coordinating machinery, to accelerate preparation of a comprehensive general plan, to prepare a 20-year development program, to prepare a four-year capital improvement program and to concentrate on city-wide and metropolitan planning.
- Establish a system of capital budgeting.
- Turn administration of the public housing program over to a new Renewal and Housing Agency.
- Give responsibility to the Renewal and Housing Agency for code enforcement on an area basis. Transfer the Housing Bureau of the Health Department to the RHA and expand its activities.
- Transfer responsibility for land clearance to RHA.
- Encourage private investments in rehabilitation areas through "affirmative programs" administered by the new Renewal and Housing Agency.
- Establish a revolving fund for urban renewal to provide funds to meet limited local cash contribution requirements. This fund would be built up and maintained at a level of $20 million to $25 million.
- Use the Renewal and Housing Agency to prepare detailed neighborhood plans in urban renewal areas, and make such plans conform to standards established by the planning agency.
- Set up a staff within the Renewal and Housing Agency to assist neighborhood and community groups in renewal areas. Area projects now under the city's Welfare Department would be transferred to the renewal agency.

Members of the Urban Renewal Study Board included: William Wheaton, chairman, director of the Institute for Urban Studies at the University of Pennsylvania; Carl Feiss, planning and urban renewal consultant, Washington, D. C.; John T. Howard, partner in Adams, Howard and Greeley, and associate professor of city planning at Massachusetts Institute of Technology; L. P. Cookingham, City Manager of Kansas City, Mo.; Luther Gulick, president of the Institute of Public Administration, New York City; and Coleman Woodbury, of West Cornwall, Conn., consultant on planning and metropolitan problems.

September Put-in-Place Sets 16th Consecutive Monthly High

For the sixteenth consecutive time, expenditures for construction put in place set a new record last month.

The total for September, according to the government, was $4,267 million—down $12 million from August—but well above the $4,148-million total in September of last year. The August to September dip was explained as "seasonal."

Private residential construction held about even with the August figure of $1.4 billion. But the $4.3-billion total for the third quarter was 10% below the record set in the same three months of 1955.

Private industrial building maintained the August rate of $273 million, while the September total for public works edged just slightly above August.

Ohio River Dams Face Delays; Steel Firms Ignore Bid Call

Failure of major steel suppliers to bid on steel sheetpilings needed for dams on the Ohio River and its tributaries may delay the Ohio River modernization program nine months to a year.

Army Engineers advertised for bids for 9,500 tons of steel sheetpiling for Barkley Dam on the Cumberland River. When the bid opening date came last week, not one of the 41 major suppliers in the United States had submitted a bid.

The Engineers are pessimistic about getting any bids for 6,000 tons of steel piling needed for the Greenup, Ky., dam and 5,500 tons for a new dam at Louisville. In all, about $150 million worth of dam construction faces lengthy delays because Army Engineers can't get $3 million worth of steel.

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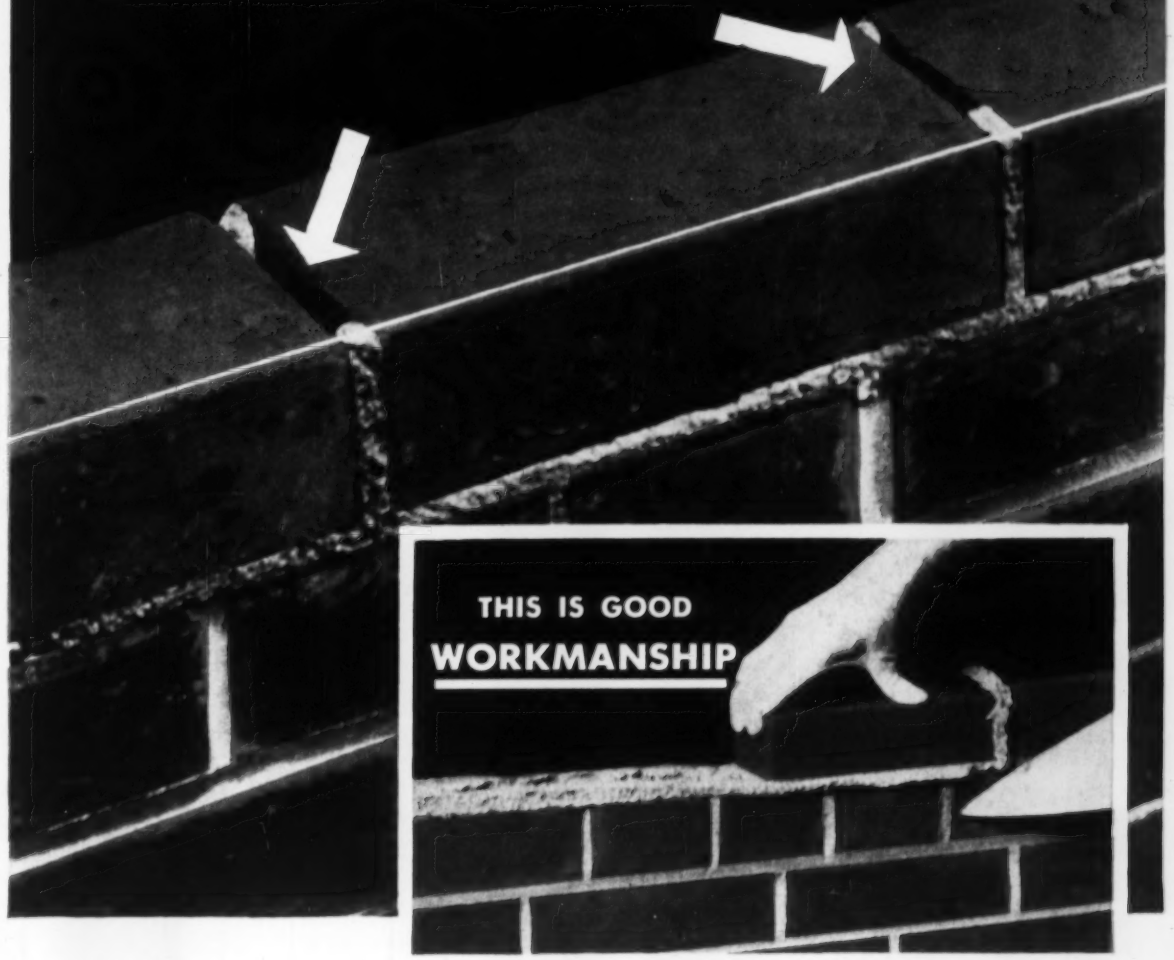

GOOD workmanship is one of the most important factors in preventing leaky brick walls.

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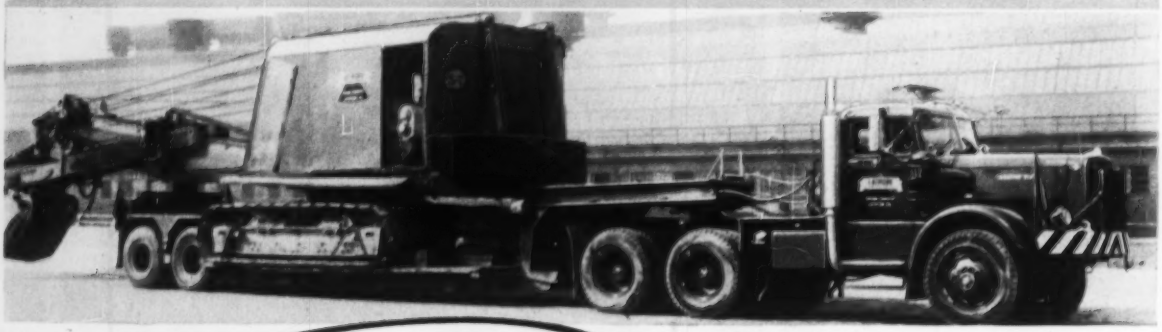

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U. S. Labor Law Enforcement

Secretary Mitchell pledges fair and vigorous action and cites record accomplishments of present administration

Secretary of Labor James P. Mitchell, proud of his record of labor enforcements, last week said that "the millions of workers who will be engaged on the vast $34-billion federal highway program now getting under way" will be afforded "the full protection of the laws I enforce—down to the last man." The principal laws that apply are the Fair Labor Standards Act and the Davis-Bacon (prevailing wage) provisions of the highway law.

Speaking in Seattle before the 1956 biennial and 71st annual convention of the bricklayers union, Mitchell said the U. S. Supreme Court's Vollmer decision had "laid the basis" for assuring highway workers the minimum wage and overtime pay protection of the Fair Labor Standards Act. In addition to payment of the minimum wage, the law requires overtime pay for work in excess of 40 hours per week.

• **Wages and hours**—In the Vollmer decision, which has become a leading guidepost in determining what construction falls within the law, the court held the workers engaged in new construction of a lock and canal apart from but intended to improve an interstate waterway system were "engaged in commerce" and therefore covered by the law.

The federal regulations have since been amended and the liberal approach officially adopted includes extension of the law on a "realistic" basis to new expressways and highways, including bridges, underpasses, overpasses, etc., that connect with an interstate highway system or function as an alternate route.

Tied in to the wage and hour requirements of the Fair Labor Standards Act is Sec. 115 of the Federal-Aid Highway Act of 1956. That provision imposes the payment of prevailing wages on highway projects on the interstate system of the federal highway program.

Even where this section supersedes the minimum wage provisions of FLSA, however, the overtime provisions may still apply because "prevailing wages" do not embrace a determination of overtime payments. This hit-or-miss arrangement, which also drags in the Eight-Hour Law in some cases, has long disturbed the building trades. Their suggestions for modernizing the Davis-Bacon Act would consolidate, clarify and strengthen the law by making overtime an element of wage determinations for all federal construction, both direct and indirect.

• **The record**—At the same time, Mitchell told the bricklayers that during the last three and a half years federal labor standards have been enforced "more vigorously and with greater result than ever before."

Here's how the record shapes up under some of the laws, according to his analysis:

Davis-Bacon—Over $833,000 in back wages have been recovered for workers since Jan. 1953 under the Davis-Bacon and related acts, as compared to $381,000 in three years following 1949. Enforcement cases, including those now under way, have totaled 1,596—in 1950-52 there were only 476. The number of contractors who have been blacklisted is 114. In the 17 years from 1935 to 1953, there were only four.

Eight-Hour-Law—Under the Eight-Hour Law, which requires overtime pay at the rate of time and one-half for work in excess of eight hours per day, penalties collected from contractors have amounted to $41,145 since Jan. 1953. Fines paid in criminal cases have amounted to $346,439 since July 1953. Total penalties collected from 1950 to 1953 were only $525.

Fair Labor Standards—During the period from Jan. 1953 to July 1956, the sum of $1,250,000 in back wages has been recovered through enforcement litigation under the Fair Labor Standards and Walsh-Healey Public Contracts Acts. In the last 14 months, over $7 million in back wages have been paid to 88,800 employees as a result of Labor Department investigations.

The net result, Mitchell said, is an "unprecedented achievement in serving the working men and women of this nation." And this record of "fair but vigorous" enforcement, he warned, "is but the beginning."

Building Trades Monitor Highway Rates

The AFL-CIO Building and Construction Trades Department has urged all local Building and Construction Trades Councils and all local building trades unions to lend active support to effective administration of prevailing wage provisions of the federal highway program. Under the law, prevailing wage rates for the interstate system are determined by the Secretary of Labor in consultation with the state highway departments.

In the current issue of its monthly bulletin the department has presented a series of concrete proposals through which labor can exercise the "constant diligence" necessary to keep wage provisions of the law "truly protective." It warns the building trades: "You may be sure that contractors are not letting these (wage) determinations slide by." And it cautions them that they "can't sit back and piously hope everything will turn out fine." At the same time, the department reminds the unions that the highway wage provision is merely protective—not a measure for raising wages—and that in some areas union rates will not necessarily be prevailing rates.

Union organizations on the local level were urged to do three things:

• Find out from their state highway departments what projects are being proposed and what rates are being recommended. Rates believed to be incorrect should be called to the attention of responsible highway officials.

• Consult U. S. Labor Department regional attorneys and, where necessary, present them with evidence of rates incorrectly recommended.

• Submit copies of their collective bargaining agreements to the Wage Determination Division of the U. S. Labor Department.

Proceeding on the theory that it's easier to get something right in the beginning than it is to right a wrong later—especially in government bureaucracy—the department urges "immediate" action along these lines by "all" building trades.

In making these suggestions, the department's concern extends beyond the highway program. "The successful operation of this program over the next twelve months," it observes, "will help to get senators and congressmen to look with favor upon our proposals to modernize the Davis-Bacon Act itself. And this will surely affect all trades favorably."

(*Labor continued on page 118*)

Training Problems

Director of apprenticeship underlines need for funds

Adequate financing of training programs for apprentices and journeymen is one of the serious problems facing labor and industry, according to W. F. Patterson, Director of the Federal Bureau of Apprenticeship.

In an address before the 47th annual convention of the AFL-CIO Metal Trades Department in Atlantic City, N. J., Patterson said that "apprenticeship is now becoming big business and to operate it satisfactorily, either on the local or national level, funds are imperative."

At the same time, he noted a number of other areas in which improvements are necessary in order to enable the apprenticeship program to meet the present and future needs of the nation. He urged all nations to project five or ten years into the future their estimates of the number of craftsmen needed and to be alert to the changes in training dictated by new materials, new methods, new designs and other technological advances.

Greater emphasis, he said, should be placed on training men in service and repair work, on the training of journeymen as well as apprentices, and on the demands that will emanate from the federal highway program, which threatens to produce a grave situation with respect to the maintenance and operation of heavy earthmoving equipment.

The financial problem, Patterson noted, has already been tackled by some groups through collective bargaining. In those instances, an employer contribution based on hours worked by apprentices and journeymen has been negotiated.

One of the groups now using this approach is the United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industry, which recently explained its merits in a phamplet entitled, "Answers to Questions About an Educational Fund."

Says the UA: "You cannot fulfill your responsibility to operate a training program when you are tied down by lack of funds. An educational fund to meet training needs in your community will prove to be the answer to the operation of a truly successful program."

Included in the UA explanation is a suggested form of educational fund agreement to be negotiated by local unions and their employer associations. Under the form suggested, the agreement is executed by an association on behalf of members who have contracts with the local union. The fund, consisting of employer contributions at the rate of one cent per hour for each hour worked by apprentices and journeymen, is administered by six trustees, three from the local union and three from the employers.

Hobbs Act Assailed

Teamsters claim the law is used to punish labor

The teamsters union has placed revision of the Hobbs Act high on its list of legislative goals and has reaffirmed its belief that on the political front union members should reward their friends and punish their enemies.

"As it now stands," the teamsters claim," the Hobbs Act is a law which can be and has been used to punish labor, particularly the teamsters and members of the building and construction trades unions."

Enacted during Harry S. Truman's administration, the act was designed to strengthen the anti-racketeering law, which the Supreme Court had interpreted to apply to professional but not to labor racketeers. It sought to prevent interference with interstate commerce by robbery or extortion and made it a criminal offense to obtain money or other concessions through unlawful use of threats, force, violence or coercion.

Speaking out in the current issue of its monthly bulletin, the union asserts that the application of the law is out of line with its original aims, with which it has no quarrel. The teamsters suggest clarifying legislation that would cause the law to be "properly and fairly interpreted and applied."

Beyond the Hobbs Act, the teamsters' legislative aims reflect those traditionally shared by most of the building trades. The list includes revision of the Taft-Hartley Act, modernization of the Davis-Bacon Act, effective federal aid to education, changes in social security and more realistic minimum wage provisions.

According to Union President Dave Beck, the goals can be achieved only with the support of members of both political parties.

Noting that the union's major gains have been won by economic rather than political action, Beck has warned against political partisanship and has urged his members to study the candidates and the issues and then to vote according to their own consciences "without bartering political allegiance for short-term gains."

Costs Edge Upward

Wage increases up slightly in third-quarter contracts

Wage increase negotiated by construction workers during the third quarter of this year average 15.2 cents an hour for the first year of the contracts. More than half of the agreements are for one year only.

In an analysis based on 101 third-quarter settlements, the Bureau of National Affairs reports that the average increase is 1.3 cents higher than the average negotiated during the first half of the year. Fringe benefits, however, are not included except where the option exists to allocate the increase to wages or fringe benefits.

Bricklayers achieved the biggest gain with an average increase of 19.6 cents, exclusive of deferred increases. Other trades, according to BNA, followed in this order: Plumbers 18.9; carpenters 17.2; painters 16.1; laborers 15; electrical workers 14.5; cement finishers 14.2; iron workers 14.1; teamsters 14; engineers 13.5.

Contracts for more than a year's duration were reported to carry, in nearly all cases, deferred increases that average 11.9 cents an hour.

State Law No Help to Union In a Railroad Work Dispute

In the jurisdictional conflict between craft and industrial unions, one of the building trades has looked unsuccessfully to state law for assistance when the disputed work was a public works project.

The incident occurred in California, where construction of the Bayshore Freeway south of San Francisco requires relocation of 1,130 ft of Southern Pacific Railroad track now running through a tunnel.

On direction of the State Public Utilities Commission, the State Division of Highways, following accepted practice, assigned the work to the Southern Pacific.

The laborers union, which contends the work should be done by its members instead of by members of the Brotherhood of Maintenance of Way Employees union, asked the State Division of Labor Law Enforcement for an opinion. The position taken by the laborers was that under the law the work should be done at prevailing laborer's wages. The state's answer: Such work is specifically excepted from the Labor Code provisions controlling rates of pay.

(*Labor continued on page 120*)

PERMALITE helped **3** *ways in building*

NAZARETH

Child Care Center, Boston, Mass.

Awarded the Harleston Parker Medal for outstanding design in the Greater Boston area

INSULATING CONCRETE: A 4" thick slab of Permalite insulating concrete (1:6 mix) underlies all of the 70,000 sq. ft. concrete slab on which the entire group of buildings rests, and prevents heat loss from the radiant heating coils in the slab.

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Nazareth Child Care Center, administered by the Archdiocese of Boston, is open to children in need without distinction as to race, color or creed, and provides residential care from infancy through the 8th grade, schooling and a child study clinic.

Architect: Maginnis & Walsh & Kenedy, Boston, Mass.
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Changes in Jobless Insurance

Liberalization demands, seasonal industry problems continue as pressure mounts for establishment of a federal standard

Scheduled increase in New York State unemployment insurance taxes pinpoint the interest of the construction industry, with its inherent employment instability, in the nation's unemployment insurance system, which has become a factor in the "welfare issue" of current political campaigns.

At his press conference last week President Eisenhower again indicated that under his "partnership policy" states should be given a chance to solve their unemployment insurance problems, like many others, before the federal government steps in with a program of its own. But with the Democratic party pledged to a federal program of "minimums", which the AFL-CIO also advocates, the conflict in approach gains a clearer focus.

• **New York problem**—In New York, where members of the construction and apparel industries have had the highest average unemployment tax rates for several years, an additional jobless insurance tax called a "subsidiary contribution" becomes effective for all employers on Jan. 1.

According to the Empire State Chamber of Commerce, Inc., the extra tax—three tenths of one percent—stems from the fact that employers with unstable employment aren't paying enough taxes to cover the cost of benefits paid to their unemployed workers. The result, the Chamber says, is that "other employers will be required to share this burden in addition to footing the bill for their own employment cost."

Chamber Counsel John Roberts has reported that the Chamber now is studying four proposals to solve this problem:

- A reduction of benefits to claimants who work in seasonal industries.
- A more realistic approach to paying benefits to employees who cause their own unemployment.
- Higher taxes for employers who consistently fail to pay their own unemployment costs.
- A two-year carry-over of negative account balances.

• **New Jersey unrest**—Similar problems have sparked unrest in New Jersey.

Last week, at an industrial conference sponsored by the New Jersey State Chamber of Commerce, a tax accountant for Walter Kidde & Co., Inc., came up with these suggestions:

- Liberalization of the amount of benefits and their duration should be avoided.
- The program should be tightened by imposing more realistic disqualification provisions to protect unemployment reserves for the benefit of the majority of claimants.
- Financing should be made more equitable so that the burden of high benefit costs won't be borne by employers with stable employment records.

• **Michigan's difficulties**—Meanwhile, problems of a different nature have beset the State of Michigan, which has one of the most liberal programs of all.

Because of severe unemployment in the auto industry various groups have looked to the state for relief. But last month the Republican-controlled legislature adjourned until Nov. 9 its fourth special session of the year after turning down Democratic Gov. Williams' proposals to increase the amount and duration of unemployment benefits and to change the experience rating provisions for small employers. Williams had urged that benefits be upped from $54 to at least $80 a week, payable for 39 instead of 26 weeks, and that the experience rating qualification period for small employers be reduced from four years to one year.

AFL-CIO's Walter Reuther has called the legislature's refusal to act a Republican failure. But George Van Peursen, chairman of the House Labor Committee, said the proposals were "unworkable" and would have imposed "unnecessary and unrealistic" changes that would have been "a permanent impediment to the growth of the economy of our state."

• **New approach?**—How long unemployment insurance will remain primarily a local problem remains to be seen.

A new approach, based on the setting of standards by the federal government, has been recommended by the AFL-CIO and endorsed by the Democrats.

Here's what the AFL-CIO advocates. "A uniform nationwide minimum standard should be adopted for unemployment benefits, duration, eligibility, and disqualifications to assure some minimum protection to all. Ultimately, there should be a single federal employment security system to overcome the many shortcomings of the present hodgepodge arrangement."

OFFICIAL PROPOSALS

Bids: November 6, 1956

Contract BP-140.002

ADVERTISEMENT

THE PORT OF NEW YORK AUTHORITY
BROOKLYN-PORT AUTHORITY PIERS
PIER 2
PILE LOAD TESTS

Sealed proposals for driving timber test piles and load testing new and existing timber piles at the site of Pier 2, to be constructed at the Brooklyn-Port Authority Piers will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, November 6, 1956, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, October 18, 1956

Bids: November 20, 1956

Contract NYA-650.039

ADVERTISEMENT

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
INTERNATIONAL ARRIVAL AND
AIRLINE WING BUILDINGS
PUBLIC ADDRESS SYSTEM

Sealed proposals for furnishing and installing a public address system for the International Arrival and Airline Wing Buildings at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, November 20, 1956, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1115, where the documents will be furnished.

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THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, October 18, 1956

OFFICIAL PROPOSALS

Bids: October 25, 1956

Power Authority of the State of New York

ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND DELIVERY OF STRUCTURAL STEEL FOR SWITCHYARD FOR BARNHART ISLAND POWER PLANT NEAR MASSENA, ST. LAWRENCE COUNTY, NEW YORK
SPECIFICATIONS NO. PA-5-12501
ST. LAWRENCE CONTRACT NO. P42

NOTICE TO CONTRACTORS: THE POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the furnishing and delivery of structural steel for the switchyard for the Barnhart Island Power Plant near Massena, St. Lawrence County, New York, until 10:30 A.M., Eastern Daylight Saving Time on the 25th day of October, 1956, at the Authority's office, 270 Broadway, Room 1305, New York, New York, at which time and place the proposals will be publicly opened and read aloud.

The work includes the fabrication and delivery of structural steel and aluminum towers for the Barnhart Island Power Plant switchyard weighing approximately 500 tons.

The work shall be completed on or before August 1, 1957.

Plans, specifications and proposal forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall and Rich, 230 Congress Street, Boston 10, Massachusetts, and The Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, may be inspected by prospective bidders during office hours, and may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, upon application and prepayment of a fee of Twenty ($20.00) dollars per initial set of contract documents and Ten ($10.00) dollars per set for additional sets, no part of which will be refunded.

Bids will not be restricted to American contractors.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 10 percent of the maximum gross sum bid.

The right is reserved to reject any or all bids.

W. S. Chapin
General Manager

PA-5-12501

Bids: October 30, 1956

The Richmond-Petersburg Turnpike Authority Richmond, Va.

October 9, 1956

NOTICE IS HEREBY GIVEN that Sealed Bids will be received by The Richmond-Petersburg Turnpike Authority for:
CONTRACT NO. C-1-G, SECTION C

Construction of the Richmond-Petersburg Turnpike, Contract C-1-G, Section C, Grading, Drainage, Paving and Structures; from a point 1800 feet North of Route 10 to a point 3900 feet North of Route 656, in Chesterfield County, Virginia.

The approximate length of the Project is 4.8 miles.

Bids for the above described work will be received at the office of The Richmond-Petersburg Turnpike Authority, 1015 East Main Street or by mail at P. O. Box 1-R, Richmond 2, Va., until 10:00 A.M. (EST) 11:00 A.M. (DST), Tuesday, October 30, 1956 and will be publicly opened and read aloud immediately thereafter in the Hunt Room of the Hotel Raleigh, 9th and Bank Streets, Richmond, Va.

Bids will be received only from those bidders who are registered in the State of Virginia and who are prequalified with The Richmond-Petersburg Turnpike Authority. Plans, Specifications, Proposal, and form of Proposal Bond, Contract and Contract Bond are on file at the offices of The Richmond-Petersburg Turnpike Authority, 1015 East Main Street, Richmond, Va. and at the offices of the Engineers, Parsons, Brinckerhoff, Hall & Macdonald, 51 Broadway, New York, New York, where they may be inspected by prospective bidders during office hours.

Plans and Specifications (including Proposal Form, Proposal Bond Form, Contract and Contract Bond Form, Special Provisions and Turnpike Supplemental Specifications) may be purchased at the office of the Authority by registered prequalified contractors for $60.00 per set. Va. Dept. of Highways, Road and Bridge Specifications may be purchased for $1.00 per copy each. Cross Sections, if desired, may be purchased for an additional $25.00 per set. No refund will be made for any of the above stated charges.

Proposal Guaranties consisting of either a certified or cashier's check in the amount of not less than 2½% of the total amount bid made payable to The Richmond-Petersburg Turnpike Authority together with a satisfactory Proposal Bond in an amount of not less than 20% of the total amount bid, specifying The Richmond-Petersburg Turnpike Authority as the Obligee must accompany each bid. All proposal guaranties will be returned immediately after the opening of bids except those of the three lowest bidders.

All work shall be done in accordance with the Plans and the Virginia Dept. of Highways, Road and Bridge Specifications dated April 1, 1954 as amended by The Turnpike Supplemental Specifications dated March 1956; both as amended by the Special Provisions.

The Authority reserves the right to reject any or all bids, submitted in response to this advertisement, and to waive technicalities as it may deem best for the interest of the Authority.

NOTE: Plans and Specifications will not be mailed prior to the receipt of payment of cost shown in this Advertisement.

The Richmond-Petersburg Turnpike Authority
John Pershing
General Manager

Bids: November 15, 1956

Power Authority of the State of New York

ST. LAWRENCE POWER PROJECT
ADVERTISEMENT FOR PROPOSALS
FOR THE
FURNISHING AND DELIVERY OF HATCH COVERS FOR BARNHART ISLAND POWER PLANT
SPECIFICATIONS NO. PA-5-15051
ST. LAWRENCE CONTRACT NO. P41

NOTICE TO CONTRACTORS: THE POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the manufacture, and furnishing of sixteen two-section, mobile, unit hatch covers and forty eight intake hoist hatch covers and delivery thereof f.o.b. the Authority's Classification Yard, Massena, St. Lawrence County, New York, until 10:30 A.M. Eastern Standard Time on the 15th day of November 1956, at the Authority's office, 270 Broadway, Room 1305, New York 7, New York, at which time the proposals will be publicly opened and read aloud.

Bids will be entertained for 16 hatch covers, 48 hatch covers or 64 hatch covers in accordance with the bidding schedules. The total weight of all hatch covers is estimated to be 380 tons. Erection at the site of installation will be done by others.

Bids will not be restricted to American manufacturers.

Plans, Specifications and Proposal Forms for the work will be on file in the Authority's Office and in the offices of the Engineer, Uhl, Hall and Rich, 230 Congress Street, Boston 10, Massachusetts, and The Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours and may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, upon application and prepayment of a fee of Twenty ($20.00) dollars per initial set of contract documents and Ten ($10.00) dollars per set for additional sets, no part of which will be refunded. Two sets must be returned with each bid.

Bids must be made in duplicate upon the proposal forms included in and bound with the Contract Documents. A bid guarantee will be required with each bid in an amount not less than 10 percent of the maximum gross sum price bid for any bid schedule.

The right is reserved to reject any or all bids.

W. S. Chapin
General Manager

PA-5-15051

Bids: October 25, 1956

Mackinac Bridge Authority

Advertisement for Proposals
for the
Grading, Paving, Drainage Structures & Pipe Tunnel for the Causeway & Toll Plaza
of the
St. Ignace Approach
to the
Mackinac Bridge
Moran Township-Mackinac County, Michigan

The Mackinac Bridge Authority will receive sealed proposals for the construction of Contract No. 6, Grading & Paving and Drainage Structures, for the St. Ignace Approach-Causeway & Toll Plaza of the Mackinac Bridge until 10:00 A.M. Eastern Standard Time on the 25th day of October, 1956, at the office of the Authority, 604 Prudden Building, Lansing, Michigan, at which time and place proposals will be publicly opened and read aloud.

The work includes the construction of reinforced concrete pavement, bituminous approaches and shoulders, copings and crib walls, pipe tunnel and sewers for the Causeway and Toll Plaza, on the approaches to the Mackinac Bridge.

The principal items of work include:

	Approximate Quantities
Earth Stripping	4,000 Cu.Yds.
Concrete Pavement, 9" Uniform	24,300 Sq. Yds.
Pavement Reinforcement	24,300 Sq. Yds.
Subbase	12,800 Cu. Yds.
Bituminous Aggregate Surface	570 Tons
Bituminous Concrete Wearing Course	465 Tons
Bituminous Prime Coat	3,400 Gals.
Aggregate Base Course—6"	4,500 Sq. Yds.
Curb	5,300 Lin. Ft.
Concrete Protection Coping	1,150 Cu. Yds.
Concrete Cribbing	3,000 Sq. Ft.
Borrow	50,000 Cu. Yds.
Steel Beam Guard Rail	6,200 Lin. Ft.
42" Sewer	630 Lin. Ft.
36" Sewer	400 Lin. Ft.
30" Sewer	1,160 Lin. Ft.
12" Sewer	280 Lin. Ft.
Manholes	10 Each
Catch Basins	6 Each
Sewer Rock Excavation	630 Cu. Yds.
Grade A Concrete	230 Cu. Yds.
Heating and Housing Concrete	1,380 Cu. Yds.
Sand-Gravel Fill	1,500 Cu. Yds.
Parking Gravel	2,330 Sq. Yds.
Waterproofing—2 Ply	4,800 Sq. Ft.
Waterproofing—3 Ply	1,500 Sq. Ft.
Conduit—4"	1,500 Lin. Ft.
Conduit—3"	480 Lin. Ft
Conduit—2"	920 Lin. Ft
Conduit—1½"	320 Lin. Ft
Conduit—¾"	160 Lin. Ft.
Cement	8,850 Bbls.
Steel Reinforcement	26,000 lbs.

Plans, Specifications, Proposal Form and Contract Documents for the work are on file in the office of the Mackinac Bridge Authority and in the office of D. B. Steinman, Consulting Engineer, 117 Liberty Street, New York 6, New York, and may be inspected by prospective bidders during office hours.

Plans, Specifications, Proposal Form and Contract Documents may be obtained from D. B. Steinman, Consulting Engineer, 117 Liberty Street, New York 6, New York, upon application and payment of a fee of twenty ($20.00) dollars, ten ($10.00) dollars of which will be refunded upon return of the Plans to non-bidders, and all of which will be returned to bidders.

Bids must be made upon the proposal form included in the Contract Documents. Each proposal must be accompanied by draft or certified check payable to the order of the Mackinac Bridge Authority for the sum of twenty-five thousand ($25,000.00) dollars.

The right is reserved to reject any or all bids.

MACKINAC BRIDGE AUTHORITY
Prentiss M. Brown, Chairman
October 1, 1956.

READ THE OFFICIAL PROPOSAL COLUMN OF
ENGINEERING NEWS-RECORD
THIS WEEK AND EVERY WEEK

OFFICIAL PROPOSALS

Bids: November 6, 1956

Construction of Concrete Wharf

ADVERTISEMENT FOR BIDS

Sealed proposals will be received by the State of Alabama State Docks Department at the Office of the Director at the Alabama State Docks Office Building, Mobile, Alabama, until 10:00 A.M. Central Standard Time, November 6, 1956, and then publicly opened for furnishing necessary materials, labor, equipment, supplies, supervision, etc., and constructing the following described work:

Construction of concrete pile wharf section and sewer culvert, Berths 3-4-5 of Marginal Wharf for the Alabama State Docks Department, Mobile, Alabama.

A certified check or Bidder's Bond payable to the Alabama State Docks Department for an amount not less than five percent (5%) of the amount bid, but in no event more than Ten Thousand Dollars ($10,000.00), shall be filed with the proposal, the Bidder's Bond being prepared upon the form specified and signed by a bonding company authorized to do business in the State of Alabama.

Specifications, proposal forms, bid and performance bond forms, contract forms and plans will be on file in the office of Trotter-Ernest Engineering Co., 1814 Old Shell Road, Mobile, Alabama, the Birmingham Building Exchange, Birmingham, Ala., the Dodge Plan Room, Birmingham, Ala., and in the office of the State Docks Director, on and after October 9, 1956. Complete sets will be furnished to qualified prospective bidders on payment to Trotter-Ernest Engineering Co. of Fifty Dollars ($50.00). Refund of Twenty-five Dollars ($25.00) will be made to bona fide bidders who return sets in good condition within ten (10) days after opening of bids. Extra set will be furnished to bidders and to other interested parties upon payment of Twenty-five Dollars ($25.00), none of which will be refunded.

A performance bond in an amount not less than the sum bid will be required at the signing of the contract and, in addition, a bond in an amount not less than Fifty percent (50%) of the contract price, insuring payment for all labor and materials.

No bid will be considered unless the bidder, whether resident or non-resident of Alabama, is properly qualified to submit a proposal for this construction in accordance with all applicable laws of the State of Alabama. This shall include evidence of holding a current license from the State Licensing Board for General Contractors, Montgomery, Alabama and prequalification by the State Building Commission, Montgomery, Alabama. In addition, non-residents of the State will show evidence of having qualified with the Secretary of State to do business in Alabama.

The right is reserved to reject any and all bids and to waive informalities.

STATE OF ALABAMA
Alabama State Docks Department
Ward W. McFarland, Director

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4777) will be received at Camp White, Oregon, until November 27, 1956, for furnishing labor and materials for constructing Howard Prairie Dam, Talent Division, Rogue River Basin Project, Oregon. Location east of Ashland, Oregon. Principal items are 266,000 cu. yds. excavation; 403,000 cu. yds. earth and rockfill embankment; 2,685 cu. yds. concrete in structures; furnishing and installing materials; installing equipment and materials furnished by the government; and other work. Completion time 750 days. For particulars, address Bureau of Reclamation, P. O. Box 386, Camp White, Oregon; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

United States Department of Commerce, Bureau of Public Roads, October 11, 1956. Sealed bids will be received at the Inter-American Highway Office, Bureau of Public Roads, Room 4009, General Services Building, Washington 25, D. C., until 2 p.m., e.s.t., November 20, 1956 for the construction of the two Projects described below on the Inter-American Highway in southern Costa Rica, identified as Costa Rica Projects 75-56-5 and 75-6-6. Project 75-56-5 begins at San Isidro and extends for 43 miles to Platanares. Four bridges are included. The approximate quantities of the major items of work are as follows: 3,565,000 cu. meters Unclassified Excavation, 68,000 cu. meters Selected Borrow Base, 180,000 tons Crushed Stone Base, 11,920 cu. yards Class "A" Concrete (culverts), 1,512,700 lbs. Reinforcing Steel (culverts), 14,900 lin. feet Nestable Bituminous Coated Sheet Metal Culvert Pipe (18"-48"), 137,000 meters Barbed Wire Fencing, 3,850 cu. yds. Class "A" Concrete (bridges) 435,300 lbs. Reinforcing Steel (bridges), 683,000 lbs. Structural Steel (bridges). Project 75-56-6 begins at a Ballast Pit approximately 25 miles southeast of Palmar and extends for 32 miles to the Panama border. The approximate quantities of the major items of work are as follows: 1,810,000 cu. meters Unclassified Excavation, 31,000 cu. meters Selected Borrow Base, 135,000 tons Crushed Stone Base, 6,820 cu. yards Class "A" Concrete (culverts), 784,000 lbs. Reinforcing Steel (culverts), 13,600 lin. ft. Nestable Bituminous Coated Sheet Metal Culvert Pipe (18" to 60"), 90,000 meters Barbed Wire Fencing. Bids will be accepted only from United States or Costa Rica firms with a satisfactory record of performance in the United States or Costa Rica. Plans, Specifications and Proposal Forms are available upon request at the address given above or from the District Engineer, Bureau of Public Roads, Fifth Floor, Hotel Costa Rica, San Jose, Costa Rica. Award and execution of the contract under this bid is contingent upon availability of cooperator funds. C. D. Curtiss, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4779) will be received at Vernal, Utah, until November 20, 1956, for furnishing labor and materials for Earthwork, Structures, Bridge, and Surfacing for Temporary Access Road to Flaming Gorge Dam, Station 0+00to Station 402+00, Colorado River Storage Project, Utah-Wyoming. Location about 8 miles north of Vernal, Utah. Principal items are 6.3 miles of grading for roadway; one mile of constructing roadway embankment; 7.6 miles of gravel or crushed rock surfacing for roadway; constructing a 345-foot timber bridge, with timber piles; and other work. Completion time 180 days. For particulars, address Bureau of Reclamation, Vernal, Utah; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

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P. O. Box 12 N. Y. 36, November 1st issue closes October 22nd

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ELECTRICAL or MECHANICAL

Equipment design, installation and modernization; construction and plant facilities work as Project Engineers. Textile experience not necessary.

Interesting and challenging work in recently modernized offices. 37½ hour week, group insurance for you and your dependents, retirement—life insurance program. $6500-$8500/year.

Offices and main plant located in Amsterdam, N. Y. (15 miles west of Schenectady) on Mohawk River and ½ mile from New York Thruway.

Write to:

Mr. O. S. Cooper
MOHAWK CARPET MILLS
Division of Mohasco Industries, Inc.
57 Lyon Street **Amsterdam, N. Y.**

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Are you worth up to

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Important permanent positions, paying from $6,500 to $10,000 a year with unusual future opportunity, have been created by the expansion program of our large, long-established engineering and construction firm. We need qualified engineers, designers and draftsmen experienced in structural, concrete, mechanical and piping design. Engineering offices are in several major American cities and Canada. Excellent working conditions. Generous company benefits. Our employees know of this ad.

Investigate this opportunity. Write today, giving age, education and experience. Your inquiry will be kept strictly confidential and will be answered promptly.

P-3067, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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EXPERIENCED STRUCTURAL STEEL DETAILERS AND CHECKERS

on Buildings and Conveyors. Long range program, good working conditions, vacation and bonus plan, liberal insurance benefits. Work in our Cleveland or Toledo office.

Send complete resume of experience and qualifications to:

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1214 Cherry Street, Toledo 4, Ohio
4913 Van Epps Road, Cleveland 9, Ohio

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Are you a civil engineer with five or six years experience following college? Are you a New Englander, now located in some other section of the country, who yearns to return home to a challenging job? Perhaps you are in a government position and would like to get into private industry. Perhaps you are in a large corporation and would like to become connected with a smaller company with a variety of opportunities for different engineering experiences. Would you like to become associated with a fast growing electric utility company in Western Massachusetts where you would have design and construction problems in connection with hydro and steam electric power plants and the structural problems of an extensive industrial development program? If so we would like to hear from you.

HOLYOKE WATER POWER COMPANY
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Bridge Designers—Draftsmen
Harrisburg, Pa.-College Park, Md.-Ft. Lauderdale, Fla., Jackson, Miss.

Architectural Designers—Draftsmen
Rochester, Pa.

Civil Engineering Draftsmen
Jackson, Miss.

Ink Tracers—Computors
Rochester, Pa., Jackson, Miss.

Air Mail Resume TO R. L. SHAW, *Personnel Director*

MICHAEL BAKER, Jr., INC.

BAKER BLDG. *Consulting Engineers* ROCHESTER, PA.

SENIOR SANITARY ENGINEER

Qualifications graduate from college in engineering and three (3) years of experience. Salary range $4440-$6360. Appointment may be made above minimum depending on qualifications. Sanitary Engineering work involves water supply, water pollution control, general sanitation. Apply to Glendon A. Scoboria, State Personnel Director, State Office Building, Hartford, Connecticut.

ENGINEERS

Long established firm of consulting engineers with world-wide practice needs both beginners and experienced civil, electrical, mechanical, and foundation engineers for interesting work on large dams, powerplants, and river control works. Permanent positions. Liberal employee benefits. Starting salaries dependent on qualifications. Please send complete resume to Hugo Niemi, Personnel Manager.

HARZA ENGINEERING CO.

400 W. Madison St. Chicago 6, Ill.

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ARCHITECTS
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Submit Resume - Minimum Salary

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PAID VACATION, SICK LEAVE HOSPITALIZATION, LIFE INSURANCE
INCLUDE EDUCATION, EXPERIENCE, REFERENCES AND SALARY EXPECTED IN APPLICATION LETTER

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1805 GRAND AVE. KANSAS CITY 8, MO.

ARCHITECTURAL ENGINEER

Architectural Engineer between ages of 25 and 35 with interest in design of industrial buildings and structures.

Excellent opportunity with consulting engineering firm in Middle West. Liberal benefit plans and good working conditions.

Send resume of education and experience with statement of salary requirements to:

P-3222, Engineering News-Record
520 No. Michigan Ave., Chicago 11, Ill.

SALES ENGINEERS

Architectural degree or equivalent experience desired. Job locations in mid western and eastern parts of United States. Contact Architects, Builders. Selling fabricated curtain wall panels and related steel products. Attractive salary, company car, expenses. Newly created sales division within nationally known corporation, opportunities unlimited. Send written resume to Personnel Manager, P. O. Box 1107 Harrisburg, Penna. Indicate preference as to working location and indicate present earnings.

CIVIL ENGINEER

Young civil engineer interested in broad application of civil engineering.

Excellent opportunity with consulting firm. Liberal benefit plans and good working conditions. Location Middle West.

Send resume of education and experience with salary requirements to:

P-3223, Engineering News-Record
529 No. Michigan Ave., Chicago 11, Ill.

RESIDENT ENGINEER AND DEPUTY RESIDENT ENGINEER

To supervise construction of $40,000,000 rockfill dam in the Middle East. Four-year completion schedule. Please send detailed experience and personal record. Specify salary expected and earliest date available.

HARZA ENGINEERING COMPANY
400 W. Madison St. Chicago 6, Ill.

CIVIL ENGINEER

With municipal experience on sewers and pavements to supervise field construction. Permanent position under Civil Service with retirement plan.

APPLY PERSONNEL DIRECTOR
City Hall, Royal Oak, Michigan

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Mechanical Engineer with project experience including administration of multi-million dollar projects preferably in processing industry. Position on General Engineering Staff. Long established major Company has need for broader engineering coverage, therefore, requiring top notch engineer for this career opportunity. Salary commensurate with these characteristics and engineering exp.

P-3179, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

REPLIES (Box No.): Address to office nearest you c/o This publication Classified Adv. Div.
NEW YORK: P. O. Box 12 (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

General Supt. Engr. for Sewers and water lines must be well experienced in supervisory installation and estimating, coordinating inside and outside. Old established Company. Resume held in confidence. Columbia Constr. Co. Inc., 2108 Columbia Ave., Indianapolis 2, Ind., WAlnut 3-1567, Mr. Farrer.

Designers—Steel, Concrete, Electrical Piping. Air-Cond., Power Plants & Industrial Bldgs. Marbarry Corp., 120 Greenwich St., N.Y.C. Rector 2-3749.

Soils Engineer—C.E. for design work in our New York office. F. R. Harris, Inc. 27 William St., N.Y.C.

Wanted—Sewage disposal plant operator desirable qualifications: High School graduate with 5-10 years practical experience. Address applications to Village Manager, Lombard Ill.

POSITIONS VACANT

Wanted: Registered Professional Engineer specializing in Soil Mechanics, capable of taking complete charge of Soil Mechanics office performing soil exploration, laboratory testing, and writing engineering reports with respect to foundation requirements. Experience necessary. Some experience in structural design of foundations preferable but not essential. Good salary commensurate with qualifications. State qualifications in full, experience resume, references and salary requirements. P-2945, Engineering News-Record.

Civil Engineers, Designers, Draftsmen experienced in the design of sewers, pumping stations, sewage treatment plants, water supply systems, structural and hydraulic design, hydraulic computations, specs. O'Brien & Gere, 400 E. Genesee St., Syracuse, N. Y.

Engineers for municipal and industrial water supply, sewerage and treatment projects. Opportunities for permanent connection with long established firm of consulting engineers in mid-west. Both E.I.T.'s and engineers considered. Full information and references in first letter requested. P-3116, Engineering News-Record.

Highways Engineers, Designers, Draftsmen for office work in the vicinity of Louisville, Ky., on highways, expressways and similar civil works. Permanent positions for qualified experienced engineers or recent graduates—with a growing firm of established consulting engineers — Opportunity for advancement based on merit—Liberal transportation and moving allowances. Suburban living available close to office. Liberal Employee Benefits—Immediate openings—Beginning Salary Commensurate with Qualifications. Please write fully to Box P-3056, Engineering News-Record.

Soils Engineer—Civil or mechanical engineering graduate preferred. Training in soil mechanics desirable. Excellent opportunity with internationally known construction firm. Submit complete resume including salary desired. P-3040, Engineering News-Record.

Ditcher Sales Promotion Manager Wanted: Experienced man to head sales promotional activity of leading manufacturer of expanding ditcher line. Must have sales experience and be familiar with design and application of both wheel and boom type machines. Position involves overall sales management responsibilities with distributors and key customer contacts. Age preferably under 45. Management level compensation. Provide complete experience resume with application. Reply to: Personnel Director, Barber-Greene Company, Aurora, Illinois.

Wanted: Pile driving superintendent capable of organizing, setting up, and prosecuting large projects. Must know equipment. State qualifications in full and salary desired in first reply. P-3124, Engineering News-Record.

Wanted: For Chicago area—engineer capable of estimating and managing all types of piping projects. P-3132, Engineering News-Record.

Wanted: Senior Structural Designing Engineer. Permanent position with industrial company in upper New York State. Salary up to $12,000.00 a year, based on ability. Excellent opportunity, and fine living conditions for family. P-3154, Engineering News-Record.

Civil Engineer with experience in prestress concrete design to locate permanently with fifty year old firm now in production of prestress members. If necessary will train. State experience, references and educational resume. The Dextone Company, P. O. Box 606, New Haven, Connecticut.

Civil Engineer—For design of pavements and drainage structures, etc. with experience on airfields to include grading and site preparation. Long time engagement offered with well established firm under ideal working conditions. Send transcript of experience record, list references, indicate salary expected and when available. Clark, Buhr & Nexsen, Architects & Engineers, P. O. Box 9628, Norfolk 5, Virginia.

Estimator—For Architectural and Engineering firm to prepare cost analysis for comparative construction schemes, etc. Must be capable of making quantity take-offs and detailed builder's estimates and familiar with prevailing costs. In reply, provide full information regarding previous experience and furnish references, indicate when available and salary expected. Clark, Buhr & Nexsen, Architects and Engineers, P. O. Box 9628, Norfolk 5, Virginia.

POSITIONS VACANT

Public Service Commission — Baltimore, Md. — openings for Asst. Chief Engineer ($6604-7924), and Jr. Asst. Utilities Engineer ($5029-6032). Contract Commissioner of Personnel, 31 Light St., Balto. 2, Md. immediately for information.

Estimator—Heavy Construction general contractor seeking experienced estimator with background in highway excavation, structures and drainage and, also, dams and tunnels. Furnish full resume of experience and references—strictly confidential. P-3210, Engineering News-Record.

Water Supply Design Engineer with sufficient experience and responsibility to assume charge of the design of filtration pumping plants, pipe lines and incidental structures. Preferably licensed in New York State. Salary open. Location New York City. P-3211, Engineering News-Record.

Structural Engineers and Draftsmen for permanent positions in Boston Area with old established engineering firm. P-3212, Engineering News-Record.

Structural Designer in the office of Engineer of Bridges for a Midwestern Railroad with headquarters in Chicago. $7,000 per year starting salary for graduate engineer with minimum of 3 years experience in bridge design. Reply to P-3213, Engineering News-Record.

Service Manager for fast growing equipment house Caribbean area must know Caterpillar Line also Excavating Equipment, permanent. Foreign language unnecessary. P-3216, Engineering News-Record.

Notice: Recently organized Water Authority serving a major portion of The Detroit Metropolitan Area desires to employ a graduate Civil Engineer with two or more years experience. Starting salary $5600.00. Inquiries solicited stating experience and salary desired. Excellent opportunity for advancement. Address all inquiries to: D. C. Egbert, Engineer-Manager, Southeastern Oakland County Water Authority P. O. Box 184, Royal Oak, Michigan.

For General Supt. Engr. For Sewers and Water Lines. Must be well experienced in supervisory installation and estimating, coordinating inside and outside. Job starts within two weeks. Submit complete resume including salary desired. Please wire or phone collect. . . . S & S Construction Co. Phone 205 Fallsburg, N. Y.

Estimators and Appraisers of all trades, also sales representatives in Philadelphia, New York, Chicago, San Francisco and Los Angeles areas preferably. Relocation unnecessary. Good pay plus profit dividends. Address resume and references to Construction Survey Co., 101 Park Avenue, New York 17, New York, and to 2920 Beverly Boulevard, Los Angeles 57, California.

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Salaried Positions $6,000 to $35,000. We offer the original personal employment service (established 46 years). Procedure of high standards individualized to your personal requirements. Identity covered. Particulars—R. W. Bixby, Inc., 559 Brisbane Bldg., Buffalo 3, N. Y.

POSITIONS WANTED

Party Chief, age 27 married exp. heavy construction & preliminary surveys. Prefer N. J. PW-3138, Engineering News-Record.

Field accountant cost, payrolls field purchasing & expediting. Relocated anywhere. PW-3152, Engineering News-Record.

Construction Manager or Administr. assist. Civil Engr., estimating, cost-control & management specialist. Available now. Miller, 1609 N. McKinley, Okla. City 6.

Seasoned Structural Engineer, registered in several states, used to handle large structural projects of any kind, particularly industrial buildings and bridges, is available for new connections, domestic, Europe or S.A. PW-3073, Engineering News-Record.

Construction Engineer Executive, 20 years experience in all phases of contractual earth moving, both dry land and hydraulic suction dredging, excavation and embankment etc., from initial investigation thru final completion. Co-ordination of labor relations, management diplomacy, both field and administrative, negotiation of special problems that require ingenuity. Either domestic or foreign PW-3108, Engineering News-Record.

POSITIONS WANTED

BSCE PE Ohio (soils, asphalt) family, 34. Ass't. to resident engineer, $15,000,000 project. Desire engineering work in Europe. Speak German and Spanish. Available 30 days. PW-3122, Engineering News-Record.

Executive, 19 years administrative & supervisory experience in heavy construction, incl. Govt and State projects. Bid to completion. Manage branch or project. $15,000. min. PW-3089, Engineering News-Record.

Superintendent, heavy & bridge construction. 19 years experience bid to completion. $200. PW-3102, Engineering News-Record.

Controller—seeks similar position. Over 12 yrs. engineering & construction contracting accounting experience plus 4 years public accounting. Top supervisor all financial & accounting detail. Or, will work with group of medium & smaller companies on part time arrangement to handle all bookkeeping, cost reports, income tax returns, etc. Will also install system and supervise your personnel. Work area to include N.Y.C. Westchester & Putnam counties and Fairfield county in Conn. PW-3111, Engineering News-Record.

Construction Engineer Superintendent. Age 43 BSCE, 20 years office and field experience: roads, airfields, waterworks, sewage, bridge and industrial construction: soils testing. Available for owner or contractor Eastern States. PW-3008, Engineering News-Record.

Executive Engineer-Designer-Checker-Specifications-Preparation specialist with unusual work-progress control. Qualified as a journeyman in electric, plumbing, carpentry, brickwork, reinforcement and structural steel prior to taking engineering. Lic. P. E. State of New York and others. Continuous background of accurate control of quantity take-off, unit costs, shipping and delivery on multi-million industrial and diversified construction. PW-3161, Engineering News-Record.

Engineer, retired, own office, desires design, estimating, steel, reinforced concrete. PW-3160, Engineering News-Record.

Construction Executive sound experience all phases, bid to completion, buildings and heavy construction, available as project manager, chief estimator or similar position where scope and volume require top man. Now employed. Minimum $15,000. PW-2596, Engineering News-Record.

Concrete Superintendent 32 years in concrete field batch & crushing plants. Experience, heavy construction, pre-cast, pier, power plants, industrial buildings, foundations, refineries, complete charge of placing & handling of concrete jobs up to 70,000 yds. Domestic or Foreign job. PW-3175, Engineering News-Record.

Contractors Manager or Assistant. 25 years in similar capacities with several outstanding Midwestern Construction Companies. Experience and ability covers supervision, estimating, bidding, negotiating, managing all types of building and heavy construction work. Available at reasonable notice. PW-3182, Engineering News-Record.

Building Construction, over 30 years experience, estimating, buying, office management. Industrial, institutional and commercial projects. PW-3181, Engineering News-Record.

Struct Engr. EIT, BSCE, MS credit, 27, exp hvy constr estimating, design and equip cost control. Interest bridges and large structures. Extensive advanced studies reinforced and prestressed concrete design and fabrication, available Nov., will relocate. PW-3186, Engineering News-Record.

Estimator—BSCE 4 yrs. constr. eng'r. 1 yr. structural designer. Bldg. and heavy construction. Desires position as estimator. Prefer Northeast. PW-3214, Engineering News-Record.

Resident Engr—Project Mgr or Asst. Civil Engr, BSCE, PE, 32, Diversified Engr exp supervision and design roads, drainage, sewage, water, marine const, dredging bridge. Foreign-Europe or SA preferred. Now Employed. PW-3219, Engineering News-Record.

Supt—Sewer and Water Lines—available Nov 1st., prefer field supervision, 23 yrs experience. PW-3206, Engineering News-Record.

Engineer, BSCE, 30. Varied experience construction, utilities, and administration. Commercial pilot, bush and airline experience. PW-3205, Engineering News-Record.

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Engineers and designers are needed to increase our staff in the following departments

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Sanitary	1 man	7 to 10 years experience
Highway	8 men	4 to 10 years experience
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Process	1 man	15 to 20 years experience
	2 men	5 to 10 years experience

Submit experience resumes and references. Interviews will be arranged

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ENGINEERS
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Men experienced in design of earth-fill or concrete dams, spillways, penstocks and hydro electric power stations are desirable. Allied experience acceptable.

Send resume to
Manager of Employment & Placement
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Corporation

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For an immediate personal interview you may phone:
Paul Keating, Plaza 7-4400, New York City
Joe Brabdick, Fairfax 3-2401, Houston, Texas
Bill Milligan, Tucker 1549, Los Angeles, Calif.
Don Palmer, Douglas 2-4032, San Francisco, Calif.

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Work in New York City and New Jersey

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GEO. E. DEATHERAGE & SON
CONSTRUCTION CONSULTANTS
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Fabricators are in desperate need for detailers. Outside detailing is offering the best solution. Get in on this terrific detailing boom. Active list of structural steel fabricators for $5.00. Every state is represented. This is the only list available at this reasonable cost.

PRIDE STRUCTURAL STEEL SERVICE
P. O. Box 3837—Cleveland 10, Ohio

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OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty-third year.

WILSON *Engineering Corp*
College House Offices HARVARD SQ. CAMBRIDGE MASS.

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ELECTRICAL POWER UNIT

Fairbanks-Morse diesel engine, General Electric Generator. Model 38-D-8 Generator, Catalog No. 6366271-G-1, Diesel Engine Series 809089, Type 6-1, 8x10 opposite pistons, 1600 H.P., 72 C.R.P.M., L.P. engine 10 cycles. Generator G.E. 45484, Catalog No. 6366271-G-1, Type FF-510-2-69, 875 K.V.A., 700 K.W., 450 V., 3 phase, 60 cycle, 720 R.P.M., Armature Amps. 1120. Exciter 120 V., 72 Amps., 1940 S.P.E.C. Size O-A. $150,000.00 value not used. Weight 54,000#. Dimensions 20 ft. long, 8 ft. wide, 11 ft. high, transport 2 Lowboys.

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Telephone CA 3-4700

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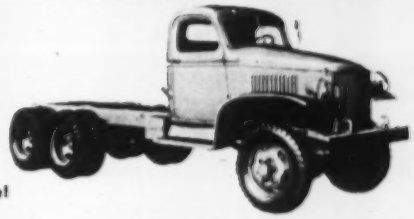

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How Big Highway Loads?

When Congress passed the Federal Aid Highway Act of 1956 it reserved decision on several questions until the Bureau of Public Roads could collect, analyze and report on the facts concerning them. One of these questions related to the maximum size and weight of vehicle for which the new roads should be designed.

None of the open questions is apt to be more troublesome or difficult to resolve than this one. None is more basic or important. Therefore, it will be well if the trucking interests, who at times have seemed to favor discarding all limitations, and the highway interests, who frequently have shown unyielding inflexibility in imposing limitations, can both seek agreement with an open and sympathetic mind. Truck designers and operators will at least have the right to expect uniformity in requirements among the several states. They are beset with non-uniformity at present. And highway engineers, on their side, will properly expect agreement with the principal that limitations are necessary.

With trucks now permitted to be 8 ft wide, 12½ ft high and 50 to 60 ft long in combination with trailers, there is not much leeway for increase in dimensions. Even the most extreme demands of responsible trucking interests have not gone much beyond this—maximum widths 8½ ft, height 13½ ft and length 65 ft, which dimensions are indeed permitted by a few states. It is the problem of gross weights and, more particularly of axle loads, that is most compelling. It is here where sympathetic bargaining must take place, for these new interstate highways must not only be safe and durable, their safety and durability must be equated with the amount of money we are justified in paying for them.

How much room there is for debate is indicated by the fact that the Pennsylvania Turnpike, for example, permits trucks with a gross weight of 100,000 lb to operate without restriction, whereas the American Association of State Highway Officials' existing maximum is 73,280 lb. This is also the maximum mentioned in the Highway Act of 1956 as passed. It is the familiar H20-S16 loading of the design specifications in which a 20-ton truck hauls a 16-ton trailer, and in which tandem axle loadings may be 32,000 lb and single axle loadings 18,000 lb. Obviously if 50-ton instead of 36-ton combinations were to be considered permissible, axle loads would have to go up.

There is additionally the question of the probable distribution of heavy trucks in the normal line of vehicles, which must be a factor in design. At the recent meeting of the International Association of Bridge and Structural Engineering in Oporto, Portgual, the delegates from many nations devoted an entire day to a discussion of this problem. Somewhat allied to this is the question of infrequent abnormal loads, as, for example, military vehicles. At the Oporto meeting it was pointed out that the German autobahns had been designed to take a single 60-ton vehicle followed by a distributed load, which had permitted vehicles of 190 tons to travel on the roads. Much greater loads than 36 tons could, of course, pass over an H20-S16 bridge also, but only in an emergency and with no great frequency.

It is with gross weights, axle loads and their frequency of occurrence that the designers of our new interstate highways must cope. Before the Bureau of Public Roads reports to Congress, a study of this question by the Highway Research Board's Committee on Economics of Vehicle Size and Weight should be available. It is to be hoped that it will be ready in time for full consideration and debate of its conclusions to the end that a united front of truck and highway design interests can back any recommendations made to Congress. To attempt to resolve any such question in legislative halls would be a serious mistake.

Train Apprentices Fully

At the recent board meeting of the Associated General Contractors, one delegate urged reduction in classroom training for apprentices in semi-skilled trades. At present, minimum apprenticeship standards call for 144 hours of related classroom instruction.

The delegate had particular reference to apprentices in cement finishing—and if the desired result of the training program is only a cement finisher, the point may be well taken.

But this is a point on which the construction industry dares not take a shortsighted view. The attrition in many construction trades is already large, and replacements are badly needed. But it is not enough simply to fill the ranks with numbers of men. One reason for the attrition is the lack of a future—of a career of possible advancement—for many young men who enter the labor ranks.

Speaking of the cement finishers in particular, some of the present apprentices in that trade must become the journeymen masons of the future. And the period of time that would be required for such an apprentice to become a journeyman—without classroom instruction—would have to be measured in years added to the initial training period. That's a period that can be cut short by proper classroom instruction.

The construction industry can't afford to train its labor—in any category—as automatons, with very limited horizons. It cannot long afford to employ men who will surely leave it when they reach the limit of advancement.

Apprenticeship is an increasingly important part of the industry's need to build a stable, highly-skilled, proud backbone. Shortchanging apprentices on classroom instruction, in order to gain an immediate increase in numbers, can't be an acceptable answer.

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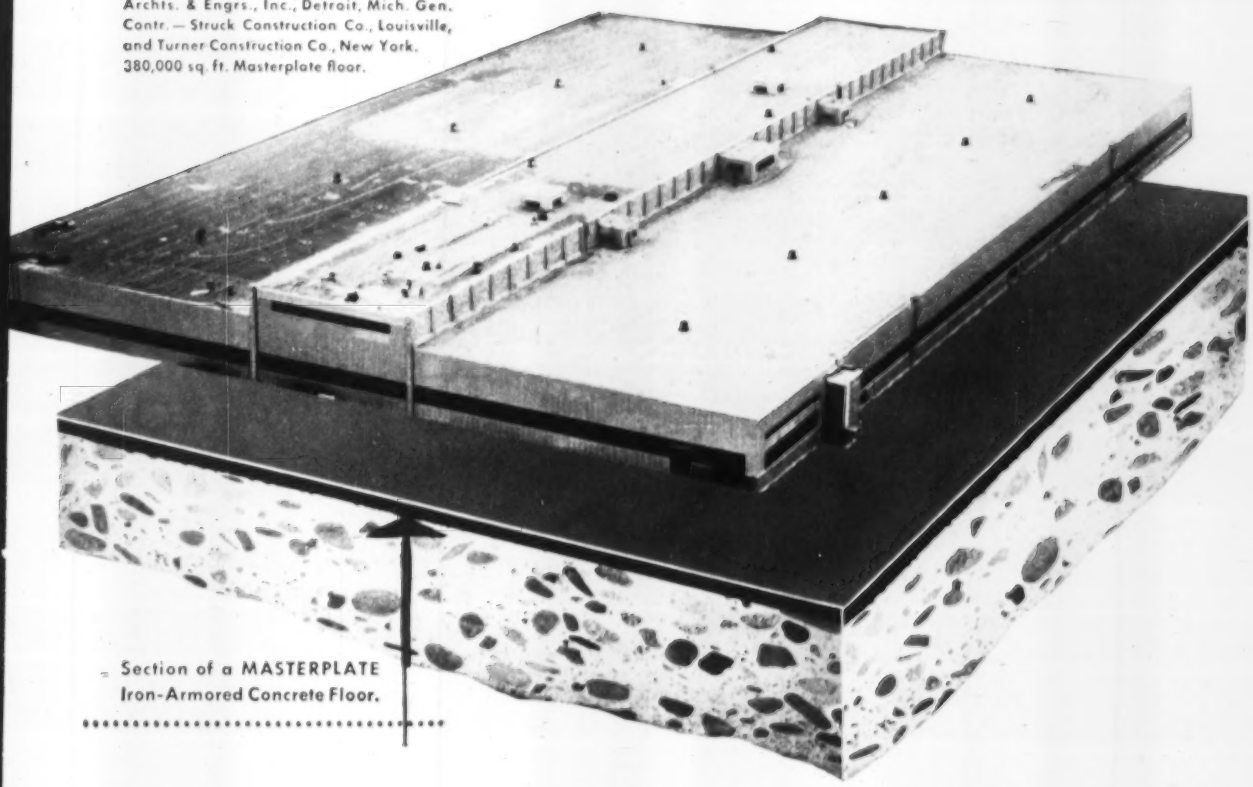

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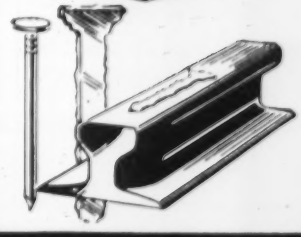

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